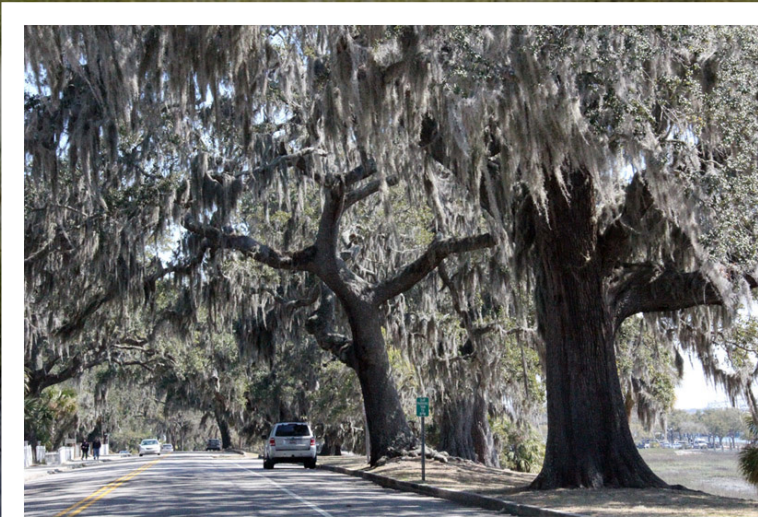


2040 LATS Long Range Transportation *Plan*

December 2015



Kimley»Horn

Chapter 1 | Purpose and Process

Introduction

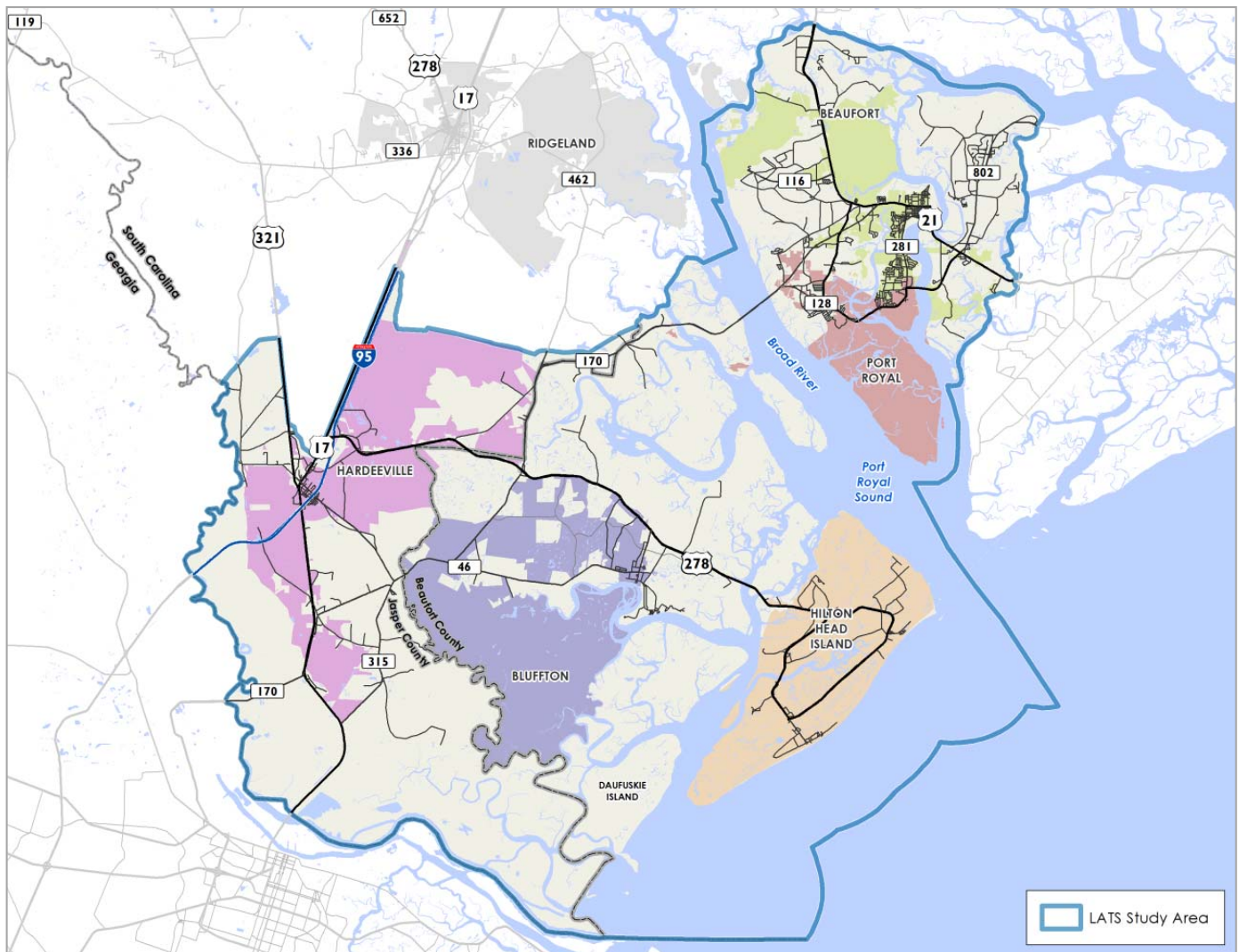
Transportation is a critical component in continuing a region's success, representing a major element of an area's social and manmade infrastructure. The *2040 Lowcountry Area Transportation Study (LATS) Metropolitan Planning Organization's Long Range Transportation Plan (2040 LATS LRTP)* defines the community's strategy for creating a regional transportation system that accommodates the current mobility needs of residents and looks to the future to anticipate where new needs may arise. The 2040 *LATS LRTP* is a financially constrained plan, meaning it identifies projects and programs that can reasonably be implemented through the plan's horizon year. In response to federal mandates and the desires of local residents, the LRTP addresses all modes of transit, including automobile, bicycle, pedestrian, transit, air, and rail movements.

The *2040 LATS LRTP* is the largest planning effort required for completion by the Lowcountry Area Transportation Study. By its nature, it is also the most far-reaching. The *2040 LATS LRTP* represents the first major planning effort conducted by the newly formed MPO. The plan fulfills federal requirements and serves as the region's transportation vision. It seeks to characterize current and future transportation needs, outline the region's long-range transportation vision, document multi-modal transportation strategies to address needs through the year 2040, and identify long-term opportunities beyond the current ability to fund projects. Federal funding cannot be allocated to transportation projects within the MPO region unless they are included in the financially-constrained plan.

Background

In March 2012, the US Census Bureau designated the Bluffton/Hilton Head Island area as an urbanized area ("Small Urban Area") with a population of 68,998. Federal regulations require the designation of a Metropolitan Planning Organization (MPO) to provide continuous, cooperative, and comprehensive transportation planning for areas with an urbanized population of 50,000 or more.

As a result, the Lowcountry Area Transportation Study (LATS) was established in 2013 as the MPO responsible for coordinating the transportation planning process for the urbanized areas of Beaufort and Jasper Counties in South Carolina, including the municipalities of Beaufort, Bluffton, Hardeeville, Hilton Head Island, and Port Royal. In general, the MPO area includes land designated as urban by the most recent (2010) US Census and other land expected to be urbanized within the next 20 years. MPOs are required to evaluate their boundary after each U.S. Census.



Long Range Transportation Plans

LATS facilitates a regional, cooperative planning process for the MPO region that serves as the basis for spending the region's federal transportation funds for improvements to streets, highways, bridges, public transit, bicycle and pedestrian paths.

The LRTP characterizes current and future transportation needs and identifies ways the region expects to invest resources to address those needs and enhance its transportation system.

MAP-21

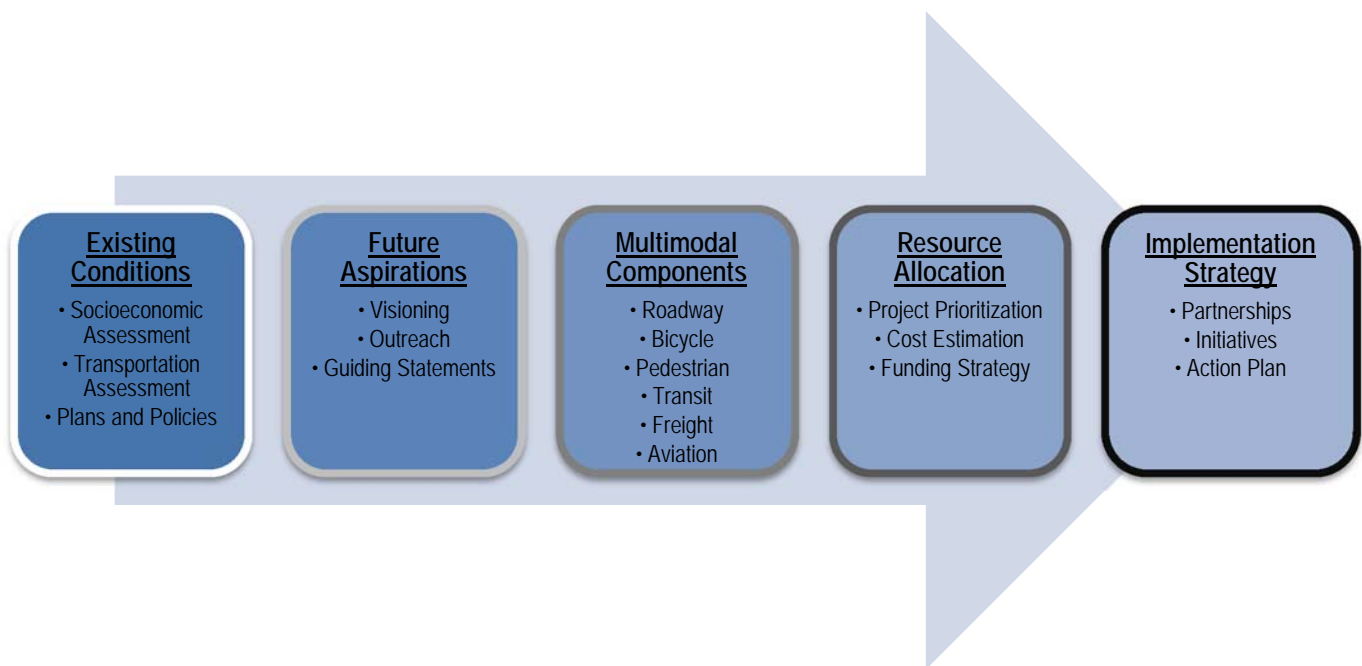
The *2040 LATS LRTP* is governed by the Moving Ahead for Progress in the 21st Century Act (MAP-21), which was signed into law on July 6, 2012. MAP-21 is the first federal highway authorization enacted since 2005 and allocated \$105 billion for surface transportation programs in its first two fiscal years (FY2013 and FY2014) alone. The goals of MAP-21 include strengthening America's highways; establishing a performance-based program; creating jobs and supporting economic growth; supporting the United States Department of Transportation's aggressive safety agenda; streamlining federal highway transportation programs; and accelerating project delivery and promoting innovation. These goals are illustrated through eight broad planning factors identified for special focus within the MPO long range transportation planning program. The *2040 LATS LRTP* addresses the following planning factors.

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency
2. Increase the safety of the transportation system for motorized and non-motorized users
3. Increase the security of the transportation system for motorized and non-motorized users
4. Increase the accessibility and mobility of people and for freight
5. Protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight
7. Promote efficient system management and operation
8. Emphasize the preservation of the existing transportation system

Planning Process

The *2040 LATS LRTP* represents a coordinated, collaborative effort to establish a vision for the area's transportation network and identify a set of multimodal projects to achieve it. The planning process requires a cooperative process between multiple jurisdictions, key stakeholders, and citizens to create a plan that reflects and respects the needs and values of the region. In doing so, the *2040 LATS LRTP* ensures the programming of transportation dollars in future years will satisfy the most important interests of the region's population.

The process started with assessments of socioeconomic conditions and the current transportation network as well as a review of existing plans and policies. A set of guiding principles and goals were established ahead of creating a set of multimodal recommendations. Once the recommendations were developed, a prioritization process was created and available resources through the horizon year 2040 were identified. The financially constrained plan provides a blueprint of transportation projects over the next 25 years.



Community Outreach

The LATS study area includes a diverse collection of communities. Outreach for the *2040 LATS LRTP* included a variety of ways to connect with these communities. Along the way, several overarching issues emerged:

- The plan should help maintain the unique quality of life in the region while balancing existing and future mobility needs.
- The plan needs to address the natural and manmade barriers that challenge mobility.
- Strategic investments in the region's major highways need to be balanced with improvements to the bicycle, pedestrian, transit, and freight networks.

These major themes and specific comments were considered in the creation of the Guiding Statements and collection of projects presented in the chapters that follow.

Successful planning projects begin with an inclusive process of strong citizen involvement. For the *2040 LATS LRTP*, the underlying principle for understanding local dynamics was collaborative planning and consensus building. As a result, local staff and the project team reached out to the community throughout the planning process.

Outreach Target Summary

	General Public	Elected Officials	Stakeholders	Technical Staff
Community Workshops	●	●	●	⊙
Stakeholder Interviews	⊙	●	●	●
Community Questionnaire	●	●	●	●
Online Interactive Map	●	●	●	●
Presentation of Final Plan	⊙	●	⊙	⊙
Committee Meetings	⊙	⊙	⊙	●

● Primary Target

⊙ Secondary Target

Technical Advisory Committee

The TAC included local officials, staff, agency representatives. The group--representing the needs of the community-- assisted with establishing an understanding of existing conditions, refining concepts, and confirming the direction taken towards final recommendations.

Questionnaire and Interactive Map

An interactive online and hardcopy survey was available beginning on January 24, 2014. More than 700 participants offered input on community preferences, opinions, and issues for various transportation modes. Participants also identified issues and possible improvements by placing icons on a map.

Stakeholder Interviews

Information was gathered through one-on-one and small group interviews with city and county staff, elected officials, Palmetto Breeze, SCDHEC, and other citizen stakeholders. The meetings shed light on issues and needs of the transportation system relative to each organization's interests.

Workshops

Two workshops were designed to gather community input. At the first workshop, participants viewed existing conditions exhibits and offered feedback on the plan's overall vision. The second workshop showcased the impacts of proposed improvements. The public were asked to assist in the prioritization of projects.

Recommendation Development

Planning Document Review

The table below and on the following pages inventories the previous plans and documents completed in the LATS study area. Chronologically organized, the inventory summarizes planning efforts as far back as 1994 and includes comprehensive plans, corridor studies, a bicycle/pedestrian plan, feasibility studies, and transit plans. Findings and recommendations from these plans were evaluated for inclusion in the *2040 LATS L RTP*.

Name	Adoption Date	Description	Key Transportation Recommendations/Requirements
Northern Beaufort County Greenway and Blueway Master Plan	June 2002	Plan that supports the Beaufort County Comprehensive Plan with greenway and blueway recommendations	<ul style="list-style-type: none"> Develop greenway segment master plans Design and construct priority greenways Create management plans for existing and newly constructed greenways
Southern Beaufort County Regional Plan	May 2006	Regional plan to guide the growth of southern Beaufort County	<ul style="list-style-type: none"> Develop a corridor management plan and uniform standards for Bluffton-area regional travel corridors Coordinate planning for multi-use pathway systems between local governments Develop access management plan
Old Town Master Plan	June 2006	Master plan to guide future infill development in Old Town	<ul style="list-style-type: none"> Reconstruct May River Road / Bruin Road Initiate increased street tree plantings Improve pedestrian/cyclist facilities on bridges
Lowcountry Long-Range Regional Transportation Plan	April 2007	Lowcountry region's long-range transportation plan; predecessor to the 2040 LATS L RTP	<ul style="list-style-type: none"> Improve evacuation routes Enhance public transportation with new equipment and Park and Ride lots Establish specialized truck rest and service areas along I-95 Increase safety at high accident intersections
Jasper County Comprehensive Plan	April 2007	Comprehensive plan that guides the development and redevelopment in Jasper County; currently being updated	<ul style="list-style-type: none"> Identify transportation improvement needs via traffic modeling Cooperate with FAA to locate a new airport in Jasper County Incorporate bicycle and pedestrian linkages into zoning ordinance as regulations or by means of incentives
Northern Beaufort County Regional Plan	June 2007	Regional plan to guide the growth and development of northern Beaufort County	<ul style="list-style-type: none"> Implement planned and committed roadway improvement projects Explore and evaluate a range of transportation improvements including road capacity improvements, transit, pedestrian and bicycle connections, enhanced access management, and operational improvements

Name	Adoption Date	Description	Key Transportation Recommendations/Requirements
Town of Bluffton Comprehensive Plan	September 2007	Community plan intended to guide future growth and development in Bluffton	<ul style="list-style-type: none"> Enhance and promote connectivity through land use design standards and connectivity standards in development codes Establish and sign a truck route alternative to SC 46 Require all new developments to accommodate pedestrians within their sites Improve bicyclist and pedestrian safety
Palmetto Breeze Regional Public Transportation Business Plan: US 278 Bus System	January 2008	Business plan for the addition of bus service along US 278	<ul style="list-style-type: none"> Initiate regularly scheduled mainline bus service along US 278 from Coastal Carolina Medical Center in Jasper County to Coligny Circle on Hilton Head Island Establish at least two park-and-ride lots on US 278 Add collector/feeder routes along US 278 route
The Town of Port Royal Comprehensive Plan	July 2009	Comprehensive plan that is intended to be a resource for day-to-day decision making and long-range planning for Port Royal's vision and goals	<ul style="list-style-type: none"> Establish parking maximums and minimums Establish a complete streets design manual Support regional transportation planning efforts Any streets or roadways accepted by the Town should meet the following standards: increase street connectivity for both vehicles and pedestrians, be beneficial to the entire community, and meet a greater public purpose
Vision Beaufort: 2009 Comprehensive Plan	December 2009	Comprehensive plan that provides guidelines for growth, development, and government of the City of Beaufort	<ul style="list-style-type: none"> Prepare a collector street plan Implement planned and committed transportation projects in Northern Beaufort County Regional Plan Develop specific recommendations for strategic community corridors Implement pedestrian and bicycle connections shown in Northern Beaufort County Regional Plan Create a master plan for bikeways, greenways, sidewalks, and trails
Beaufort County Comprehensive Plan	2010	State-mandated comprehensive plan that guides the growth and development of Beaufort County	<ul style="list-style-type: none"> Identify and pursue future funding sources Develop strategies to reduce vehicle miles traveled Encourage context sensitive design Emphasize non-motorized transportation Minimize emergency evacuation times
Palmetto Breeze Transportation Planning Services	January 2010	Transportation planning study to determine feasibility of implementing a fixed route transit system along US 278	<ul style="list-style-type: none"> Address need for pedestrian improvements along US 278 Enhance Palmetto Breeze facility transfer center Utilize Bluffton Parkway as an alternative to US 278 Engage government officials for dedicated transportation funding Conduct public meetings to educate the public and understand their interest Perform a detailed transit study

Name	Adoption Date	Description	Key Transportation Recommendations/Requirements
City of Hardeeville Comprehensive Plan	January 2010	Comprehensive plan that presents a conceptual framework for the future growth and development of the City of Hardeeville	<ul style="list-style-type: none"> • Provide safe pedestrian access at all intersections, along all streets, and across I-95 • Improve local circulator transit service • Complete a comprehensive bicycle and pedestrian plan • Encourage transit-friendly development
Town of Hilton Head Island Comprehensive Plan	July 2012	Comprehensive plan that provides a baseline of existing conditions and outlines a blueprint for growth and development of the Hilton Head Island community	<ul style="list-style-type: none"> • Consider implementation of concepts such as "Complete Streets" that integrate multiple forms of transportation modes and promotes connectivity • Expand the Island's multi-use pathway system to connect all appropriate land uses • Prepare a public transportation plan to address public transportation issues on the Island
Lowcountry Coordinated Transportation Expansion Plan	December 2012	Plan initiated by the Community Transportation Association of America to assess and provide guidelines for coordination and consolidation strategies	<ul style="list-style-type: none"> • Consolidate human service agency vehicles into the public transit system • Establish brokerage contract agreements with private providers to fill-in transit system gaps • Coordinate drive and passenger assistance training • Establish maintenance and safety standards
Infrastructure Master Plan for Exit 8 off of I-95 in Jasper County, SC	January 2014	Plan to review land uses, determine development potential, and needed infrastructure improvements	<ul style="list-style-type: none"> • Recommend eight phases of infrastructure improvements totaling \$89.9 million • Complete TIA for development of the Exit 8 area • Show desire for development through signage and planned lot sizes and road access • Seek funding to implement early phases of plan
Beaufort Civic Master Plan	February 2014	Master plan that establishes principles and standards for all public and private development and provides a guide for identifying and promoting investment within the City; part of comprehensive plan	<ul style="list-style-type: none"> • Construct Spanish Moss Trail • Enhance pedestrian and bicycle infrastructure • Improve street connectivity • Streetscape Boundary Street (west of Ribaut Road) • Streetscape Ribaut Road
South Carolina 2040 Long Range Transportation Plan	December 2014	Statewide LRTP, including the Interstate Plan, Freight Plan, Strategic Corridor Network Plan, Rail Plan, Statewide Transit Plan, Lowcountry Regional Transit Plan, and the Statewide Strategic Safety Plan.	<ul style="list-style-type: none"> • Establish statewide priorities

Document Overview

The 2040 LATS LRTP is divided into the following 9 chapters.

Chapter 1 Introduction	
Chapter 2 Guiding Statements	<ul style="list-style-type: none"> • Describes a set of six guiding principles and goals for each to provide the LRTP direction.
Chapter 3 Social & Environmental Resources	<ul style="list-style-type: none"> • Examines demographics, environmental and social resources to provide a frame of reference for selection of transportation projects
Chapter 4 Roadway	<ul style="list-style-type: none"> • Responds to existing and projected roadway conditions with infrastructure recommendations
Chapter 5 Safety and Security	<ul style="list-style-type: none"> • Focuses on safety and security as it relates to critical nodes (intersections and bridges) of the roadway network.
Chapter 6 Bicycle and Pedestrian	<ul style="list-style-type: none"> • Evaluates existing bicycle and pedestrian systems and recommends a variety of facility types.
Chapter 7 Transit	<ul style="list-style-type: none"> • Inventories existing transit system and provides service improvement and management alternatives
Chapter 8 Freight and Aviation	<ul style="list-style-type: none"> • Reviews relevant data, inventories existing facilities, and presents travel flows. Addresses gaps and intermodal connectivity needs.
Chapter 9 Implementation Plan	<ul style="list-style-type: none"> • Evaluates potential funding (revenues, costs). Describes priorities and implementation methods for recommendations. Includes an action plan to assist decision-makers.

Chapter 2 | Guiding Statements

Introduction

Transportation has long been the driving force behind economic and population growth in the LATS area. Today more than ever, citizens, elected officials, local staff, and community stakeholders must work together to plan a transportation system that guides growth in a way that empowers the local economy and enhances quality of life. The first step in developing a long range transportation plan is to establish guiding statements, goals, and objectives to provide direction for the plan. The *2040 Lowcountry Area Transportation Study Long Range Transportation Plan (2040 LATS LRTP)* guiding statements reflect the community's vision for the transportation system. The guiding statements also help identify ways to prioritize potential recommendations, an important step as the area faces a shortage of transportation dollars to fund identified needs.

Guiding Statements

A. Congestion Mitigation



Congestion occurs for numerous reasons but usually due to bottlenecks or when too many people travel on a route that already operates at or over capacity. Residential, commercial, or industrial growth often is at the root of increased congestion. Yet building additional capacity can only be part of the answer because these improvements often enhance access, thus raising land values and attracting more development. Best practices advocate addressing congestion through improvements to existing roads, strategic construction of new roads, interconnectivity, opportunities for safe and convenient walking and bicycling, improved transit opportunities, and mutually supportive transportation and land use initiatives. At the same time, moving goods continues to be one of the most expensive parts of the production cycle. Maintaining and improving infrastructure promotes economic growth and provides long-term economic stability for the region. Projects identified under this guiding principle focus on roadway improvements that enhance the ability move people and goods within and through the region. These roadway improvements are balanced by multimodal projects and initiatives. Congestion Mitigation projects seek to:

- Address congestion through strategic capacity improvements
- Implement access management on key corridors
- Improve connectivity
- Promote freight movement

B. Livability and Complete Streets



As part of the public realm, streets need to reflect the values of the community and reinforce a unique sense of place to be enjoyed by citizens—whether in urban, suburban, or rural contexts. Implementing complete streets are one way to transform transportation corridors from vehicle-dominated roadways into community-oriented streets that safely and efficiently accommodate all modes of travel—not just motor vehicles. The notion of complete streets connects the functionality of moving people and goods with the livability of the corridor and surrounding private property. Therefore, design considerations supportive of complete streets include elements in both traditional travel as well as adjacent land uses for reinforcing the desired sense of place. The hope is to maintain quality of life while balancing the mobility needs of the area and accommodating future growth. Common goals for complete streets are economic revitalization, business retention and expansion, and public safety. With this in mind, projects fulfilling the Livability and Complete Streets guiding principle seek to:

- Create corridors that serve multimodal needs
- Enhance safety
- Integrate land use strategies with transportation goals
- Emphasize potential growth areas
- Enhance gateways, signage, and beautification

C. Barriers to Mobility



The long range transportation planning process devises a strategy to create a regional transportation system that not only accommodates the current mobility needs of residents but also looks to the future to anticipate where new needs will arise. A transportation network with mobility choices is critical for sustaining and extending economic development. The network of rivers, estuaries, marshes, open water, protected lands, highways, and bridges create natural and manmade barriers that challenge local and regional mobility. Overcoming these barriers is an important consideration of the *2040 LATS LRTP*. Projects fulfilling the Barriers to Mobility guiding principle seek to:

- Enhance evacuation routes
- Address bridge deficiencies
- Advocate system maintenance
- Improve system connectivity
- Promote intersection-level improvements

D. Multimodal Integration



Programming appropriate transportation projects to guide growth in a way that enhances quality of life is not an easy feat. Challenges include deficiencies in existing roads, lack of interconnectivity between developments, natural barriers, and the disconnect between land use and transportation decisions. In the past, transportation planning focused on improvements to highways and major roads. We now recognize such improvements can help only so much. Strategic investment in major roadways must be balanced with improvements to the bicycle, pedestrian, transit, and freight network to keep people and goods moving, allow better access and mobility for residents and visitors, and enhance the way of life in the region. Projects fulfilling the Multimodal Integration guiding principle seek to:

- Develop priorities for bicyclists and pedestrians
- Create coordinated transit improvements and strategies for system maintenance
- Support economic vitality

E. Economic Vitality and Tourism



Economic vitality often means different things to different people but typically includes a diversified economy with well-paying jobs in stable industries. Economic vitality initiatives reinforce the importance of economic health to overall quality of life. For the Lowcountry area, economic vitality often is linked with tourism. In no way can the economy and tourism thrive without the means to travel safely and efficiently. Transportation is an integral part element of the region's economy, so the *2040 LATS LRTP* considers the region's critical destinations and the way people access them. This is accomplished in part by establishing shared visions and addressing objectives without compromising the unique character of our communities. Protecting the character of our communities requires a balanced approach to accommodating future growth and preserving valued open spaces. Therefore, projects fulfilling the Economic Vitality and Tourism guiding principle seek to:

- Promote economic competitiveness
- Attract new development
- Leverage our tourism assets
- Encourage recreational activity

F. Environmental Stewardship



Protecting and enhancing the environment is a concern shared throughout the transportation community and a clear requirement of federal legislation. MAP-21 planning factors provide guidance to protect the environment, identify the need for integrating the planning and environmental processes, and promote a streamlined process for reviews and permitting. Coordinated efforts can support the protection of the environment and set the stage for a streamlined outcome when projects advance through the NEPA process. More importantly, projects that promote environmental stewardship rather than those that require environmental mitigation can be championed in regional transportation planning exercises such as the LRTP. As a result, projects that fulfill the Environmental Stewardship guiding principle seek to:

- Emphasize system preservation
- Provide alternatives to environmentally harmful improvements
- Protects environmental, social, and historical resources
- Enhances access and mobility for disadvantaged populations

Goals

Using the guiding principles as a guide, goals and objectives were developed to ensure the plan addresses regional transportation needs and complies with MAP-21. The goals offer general rules, while objectives define results that must be achieved or actions that must be followed to reach their respective goal. Goals and objectives are not mutually exclusive of each other and often conflict with each other. For example, a project that encourages economic development could be excluded from the plan because it may endanger wetlands. The cumulative effect each project has on the plan's goals and objectives must produce a significant net benefit before it can be incorporated into the LRTP. The *2040 LATS LRTP* goals are listed below in no particular order.

Goal #1: Preserve, maintain, and enhance the existing transportation system.

Objectives

- Give priority to projects that improve the condition of the existing transportation system or upgrade existing transportation facilities.
- Improve connections between modes of transportation.
- Seek opportunities to use access management and design treatments to improve the mobility of strategic corridors.

Goal #2: Improve the operational efficiency of the transportation network.**Objectives**

- Encourage initiatives that promote transit and other transportation modes as alternatives to the single occupancy vehicle.
- Promote the use of technological improvements as part of an overall transportation management strategy.
- Support measures that reduce travel during peak demand hours.

Goal #3: Support the economic vitality of the region.**Objectives**

- Give priority to transportation programs that retain existing businesses and attract new businesses to the area.
- Improve access to freight facilities (ports, airfields, industrial parks) for people and freight.
- Advocate efforts that encourage the development of tourism in the region.

Goal #4: Protect and enhance the environment.**Objectives**

- Minimize direct and indirect environmental impacts of the transportation system by considering improvements to the existing system ahead of newly constructed facilities.
- Minimize the impact of proposed transportation improvements to neighborhoods.
- Integrate land use and transportation policies to limit impacts to sensitive land, focus development in prime locations, encourage trips by modes other than personal automobiles, and enhance the region's quality of life.

Goal #5: Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.**Objectives**

- Create a system of interconnected streets to improve mobility and distribute traffic efficiently and appropriately by purpose and function.
- Encourage Complete Streets initiatives, streetscape and traffic calming features in roadway designs for collector and residential streets.
- Promote a bicycle- and pedestrian-friendly environment by filling gaps and improving connectivity among the region's homes, parks, community activity centers, employment hubs, and other key destinations.

Goal #6: Enhance the safety of the transportation system for all users.

Objectives

- Provide a safe traveling experience for all users by implementing safety measures at high priority crash locations and improving facilities for bicyclists and pedestrians.
- Give priority to projects and programs that eliminate roadway hazards and improve safety.
- Support the development and implementation of roadway design standards that improve highway safety.

Goal #7: Enhance the security of the transportation system for all users.

Objectives

- Assess transportation improvements in terms of impact to neighborhoods, travel times, and access to community services.
- Give priority to projects and programs that eliminate roadway hazards and improve security.
- Protect the capacity of I-95, strategic bridges, and other regional corridors that serve as evacuation routes for natural disasters.

Goal #8: Maintain financial responsibility in the development and preservation of the transportation system.

Objectives

- Give priority to those transportation projects and programs that provide the greatest net benefit at the least cost.
- Ensure transportation projects and programs utilize available funds in the most cost-effective and financially responsible manner possible.
- Seek out additional federal and state transportation funds whenever possible.

MAP-21 Planning Factors

The guiding principles, goals, and objectives for the *2040 LATS LRTP* account for recent planning efforts and emerging transportation trends in the region. The goals and objectives were developed in consideration of the MAP-21 planning factors. The table below shows how the *2040 LATS LRTP* goals and objectives address these federal planning factors.

2040 LATS LRTP and MAP-21 Planning Factors	
MAP-21 Planning Factors	2040 LATS LRTP Goal/Objective
1) Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.	3, 5
2) Increase the safety of the transportation system for motorized and non-motorized users.	6 Selected objectives under Goal 5
3) Increase the security of the transportation system for motorized and non-motorized users.	7 Selected objectives under Goal 2, 4
4) Increase the accessibility and mobility of people and freight.	4, 5 Selected objectives under Goal 2, 3, 6, 7
5) Protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns.	1, 2, 3, 4, 5, 8
6) Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.	1, 2, 3, 4, 5, 6, 7, 8
7) Promote efficient system management and operation.	1, 2, 3
8) Emphasize the preservation of the existing transportation system.	1, 2, 3, 4, 6, 7, 8

Chapter 3 | Social and Environmental Resources

Introduction

Decisions made as part of the long range transportation plan process must consider the area's natural resources as well as the social and cultural elements unique to Beaufort, Bluffton, Hardeeville, Hilton Head Island, Port Royal, and the surrounding areas of Beaufort and Jasper Counties. Screening environmental and social resources as part of the transportation planning process is more than just good practice—it is a federal requirement. The screening helps identify sensitive resources and begins to determine ways to mitigate or avoid impacts that could result from construction. Identifying potential impacts also helps balance the often competing interests of improving mobility and preserving a community's important natural and cultural features. The earlier these features are identified, the more likely sustainable solutions will arise to minimize or avoid impacts and reduce unnecessary delays and expenses.

This chapter of the *2040 Lowcountry Area Transportation Study Long Range Transportation Plan (2040 LATS LRTP)* documents environmental and social features. When overlaid with proposed transportation projects, this information provides a frame of reference to help assess the relative impacts of these projects on the community.



Planning Considerations

The process through which today's transportation decisions occur includes a system of checks and balances designed to mitigate unfair and disproportionate impacts of transportation projects. The federal government requires the transportation planning process be cooperative, continuous, and comprehensive to ensure that disadvantaged communities receive fair consideration regarding the benefits and impacts of transportation projects.

Environmental Stewardship

Environmental stewardship within the transportation planning process outlines a proactive approach to conserve natural resources during the planning, design, and construction of transportation projects. The *2040 LATS LRTP* provides environmental stewardship by identifying natural areas and environmental features that need to be conserved. To be effective, the transportation plan must coordinate with local efforts to protect these resources.

Environmental Justice

Environmental justice has been a federal requirement since recipients of federal funds were required to certify nondiscrimination following the Civil Rights Act of 1964. A 1994 Presidential Executive Order required all federal agencies to make environmental justice part of their missions. The law was enacted to avoid the use of federal funds for projects, programs, or other activities that generate disproportionate or discriminatory adverse impacts on minority or low-income populations. The U.S. Department of Transportation (USDOT) promotes environmental justice as an integral part of the long-range transportation planning process as well as individual project planning and design.

According to the USDOT, environmental justice requires the understanding and incorporation of the unique needs of distinct socioeconomic groups to create transportation projects that fit within the framework of their communities without sacrificing safety or mobility. Environmental justice within the *2040 LATS LRTP* is based on three fundamental principles derived from guidance issued by the USDOT:

- Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations.
- Ensure all potentially affected communities' full and fair participation in the transportation decision-making process.
- Prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

Best Practices

Available data was referenced throughout the development of recommendations to avoid or minimize impacts to known environmental features. The early review of this data was intended to lessen environmental impacts and reduce potential conflicts during construction of the projects. When considering new roadway alignments and major widening projects, the following best practices should factor into the decision-making process:

- Avoid steep slopes and otherwise unsuitable topography.
- Minimize impacts to the built environment.
- Avoid or minimize impacts to neighborhoods.
- Avoid unnecessary or disproportionate impacts to minority and low-income communities.
- Avoid impacts to parks and designated open spaces.
- Minimize impacts to school sites.
- Minimize the number and size of impacts to historic features and districts.
- Be aware of existing development patterns.
- Capitalize on street connectivity opportunities such as stub streets.
- Encourage a multimodal system with the promotion of pedestrian, bicycle, and transit networks.
- Minimize the number of wetland impacts.
- Minimize the amount of each wetland impact.
- Avoid FEMA designated floodplains.
- Minimize the number and length of stream crossings.
- Minimize the number of new facilities in critical watershed areas.
- Minimize the number and size of impacts to threatened and endangered species.

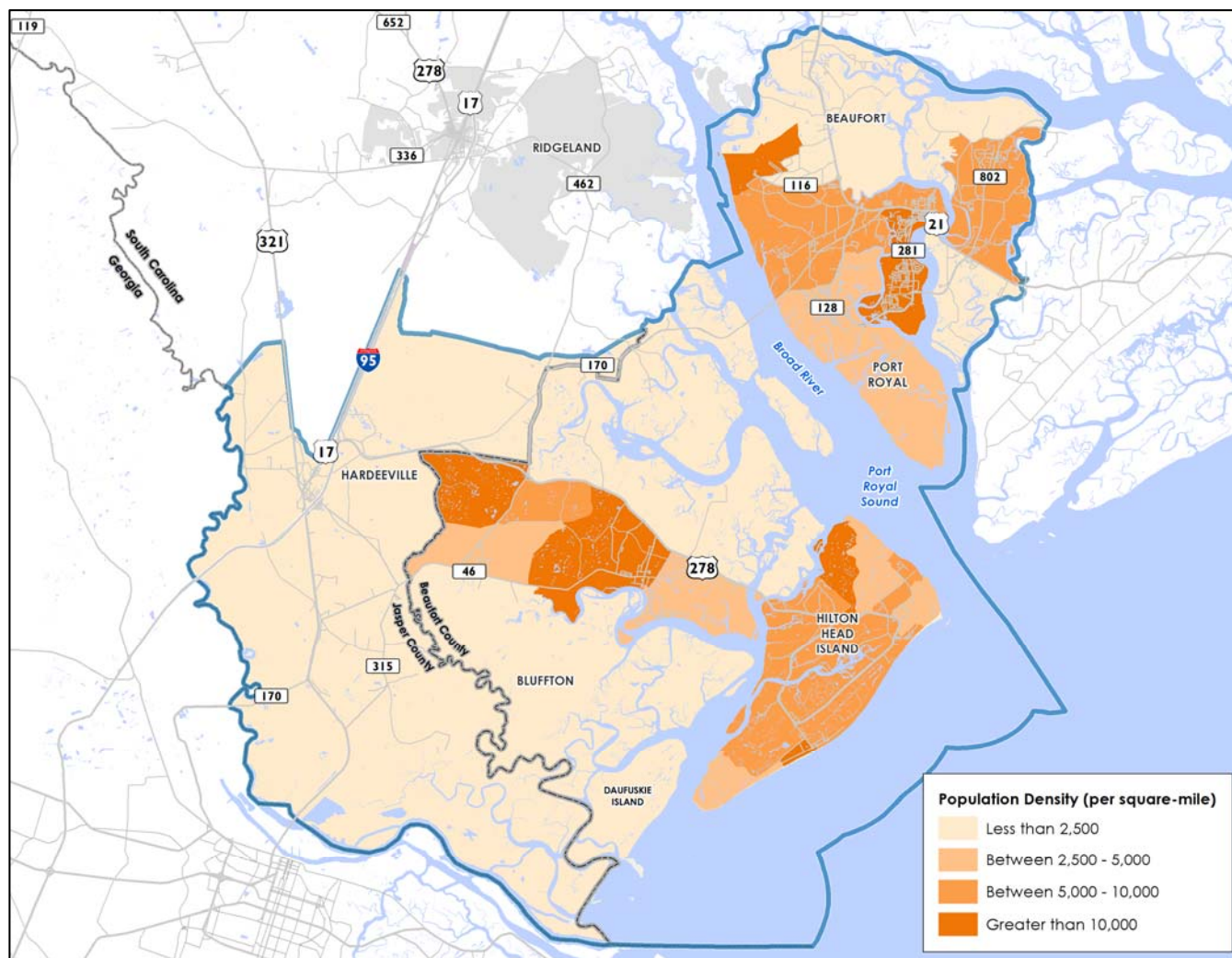
Socioeconomic Conditions

Population Characteristics

Population Density

According to the 2012 American Community Survey 5-Year Estimates, the LATS region's population is 181,431, which accounts for 3.9% of South Carolina's population of 4.6 million people. The average population density in the LATS study area is 1,996 people per square mile, compared to South Carolina's average of 1,658 people per square mile.

The LATS area is densest in portions of Bluffton, Hilton Head Island, northeastern Port Royal, and Beaufort. Large residential developments located within these areas include the Hidden Cypress Golf Course; Sun City; Bluffton Park; Hilton Head Plantation; Mossy Oaks; and Laurel Bay, a military housing complex.

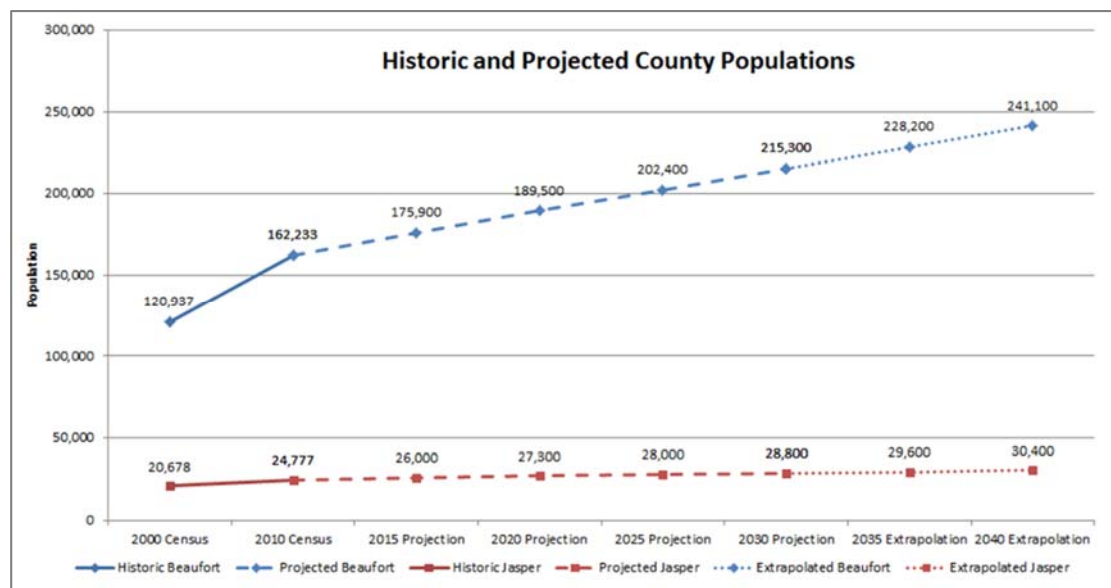


Population Projections

The South Carolina Budget and Control Board projects populations by county out to 2030, based on Census population estimates, birth and death rates from the South Carolina Department of Health and Environmental Control, migration data from the Internal Revenue Service, and group quarters population information from the Office of Research and Statistics.

From the 2000 to 2010, the state population grew by over 600,000 people, reflecting a 15.3% growth. In contrast, the population grew in Beaufort and Jasper counties by 34.1% and 19.8%, respectively.

According to the South Carolina Budget and Control Board's population projections, South Carolina's population is anticipated to grow by 0.8% per year, swelling to 5.9 million people in 2040. Jasper County's population is expected to grow at the same rate to 30,400 people. However, Beaufort County is projected to grow to 241,100 people by 2040 at an average rate of 1.3% per year. Projections and percent growth are shown in the graph and table below. Population projections for 2035 and 2040 were extrapolated from the 2015-2030 projections.

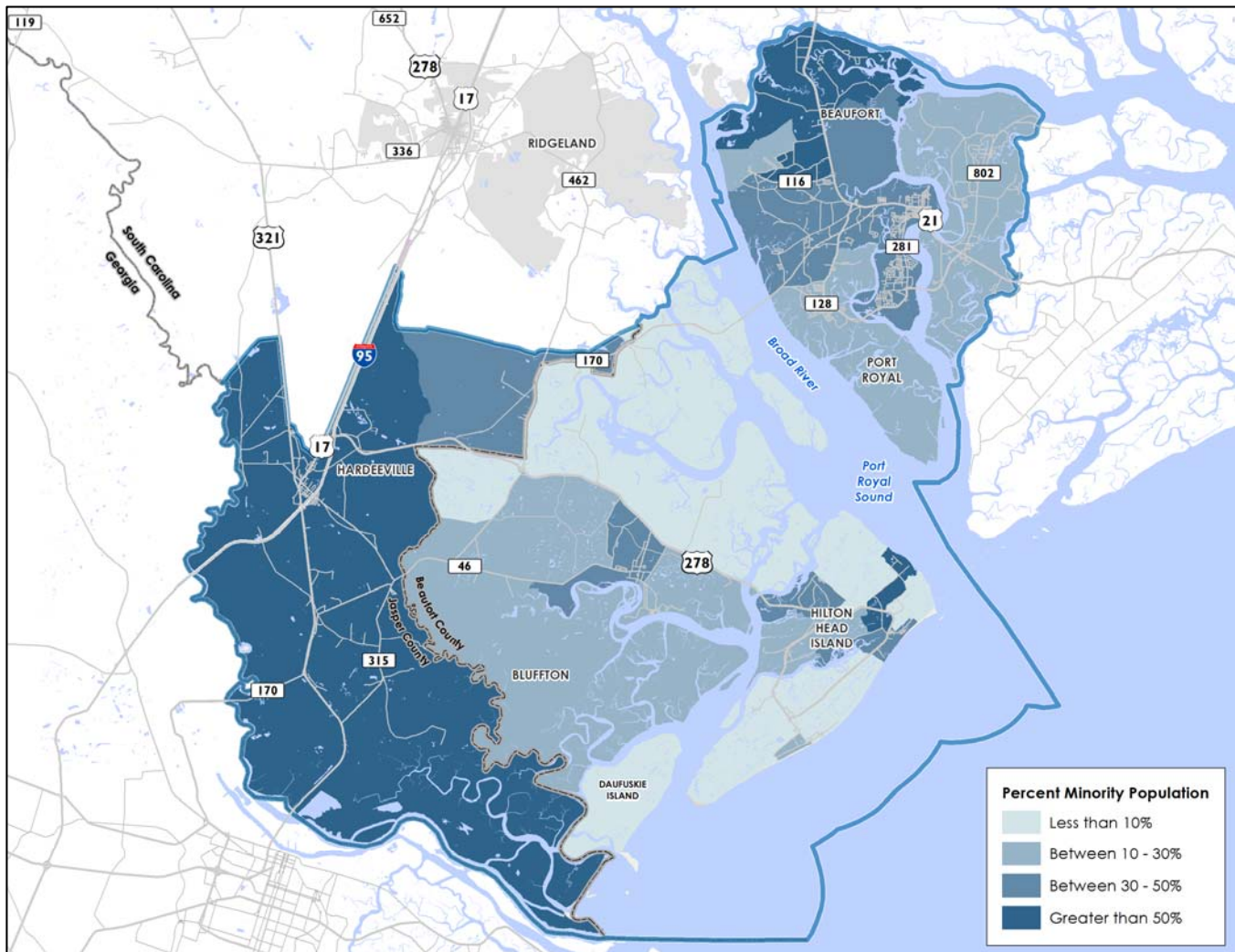


County	Census		Projection						Annual Change
	2000	2010	2015	2020	2025	2030	2035	2040	2010 to 2040
Beaufort	120,937	162,233	175,900	189,500	202,400	215,300	228,200	241,100	1.3%
Jasper	20,678	24,777	26,000	27,300	28,000	28,800	29,600	30,400	0.8%
South Carolina	4,012,012	4,625,364	4,823,200	5,020,800	5,235,500	5,451,700	5,667,900	5,884,100	0.8%

Minority

The American Community Survey collects detailed information regarding race. Survey participants can indicate their race as White, Black or African American, American Indian and Alaska Native, Asian, or Native Hawaiian and Other Pacific Islander. Participants also are able to indicate if they are of two or more races. Within this assessment, minority populations refer to people who do not define their race as White Only.

The region's minority populations are most pronounced in the portion of Jasper County within the study area, along US 21 north of Beaufort, and in northeast Hilton Head Island. Approximately 31% of the study area's population is considered part of a minority race, compared to 33% for the state of South Carolina. Hispanic populations in eastern Jasper County have increased significantly in recent years.

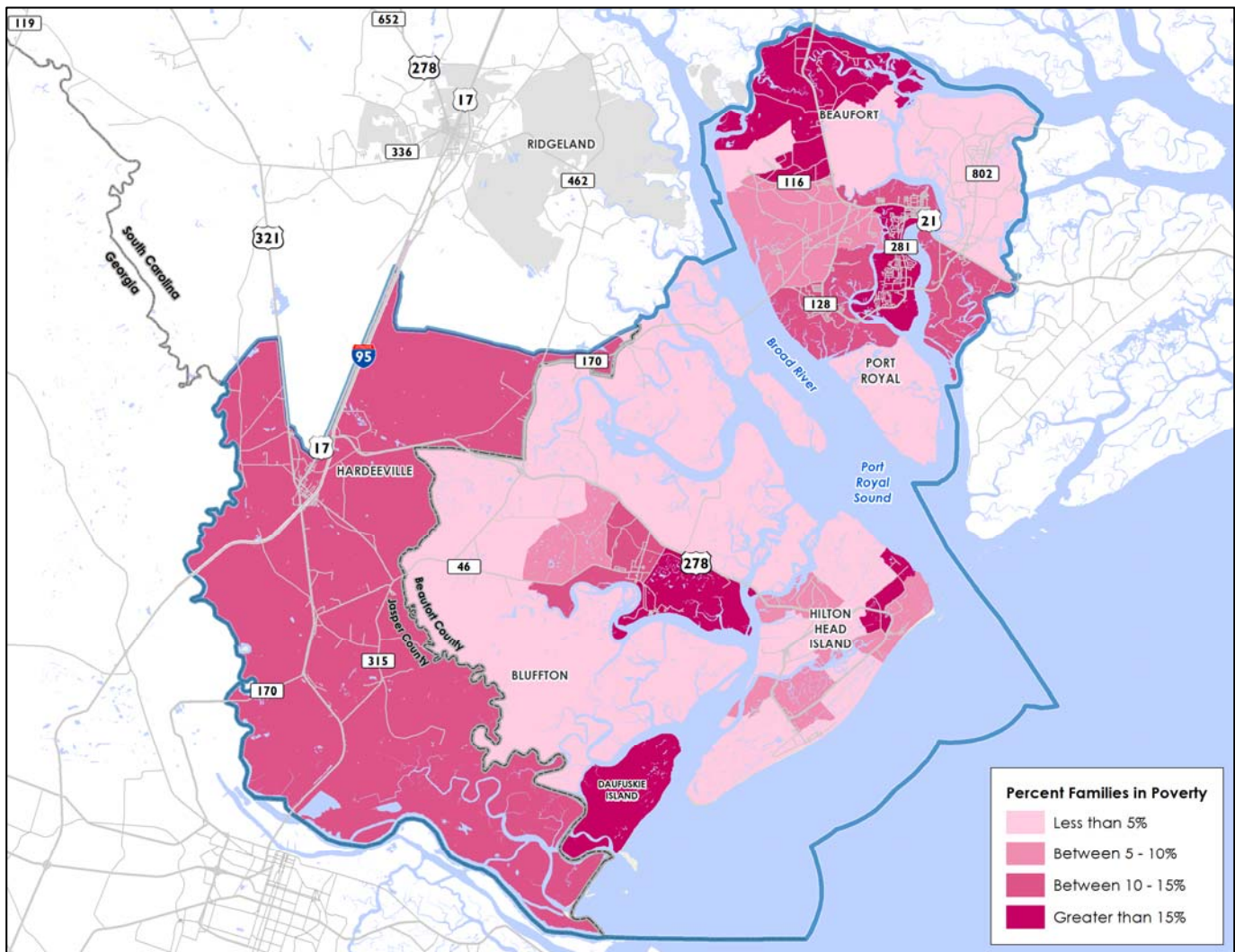


Income and Poverty

The American Community Survey defines poverty by families and individuals: families with a total income below the poverty threshold and individuals with incomes below the poverty threshold are considered to be in poverty. In 2012, the poverty threshold for a family of four was \$23,492 and the poverty threshold for an individual was \$11,720.

The average per capita income in the LATS study area is \$28,641 compared to the state average of \$23,906, according to the 2012 American Community Survey 5-Year Estimates. Approximately 13% of individuals in the region are living in poverty.

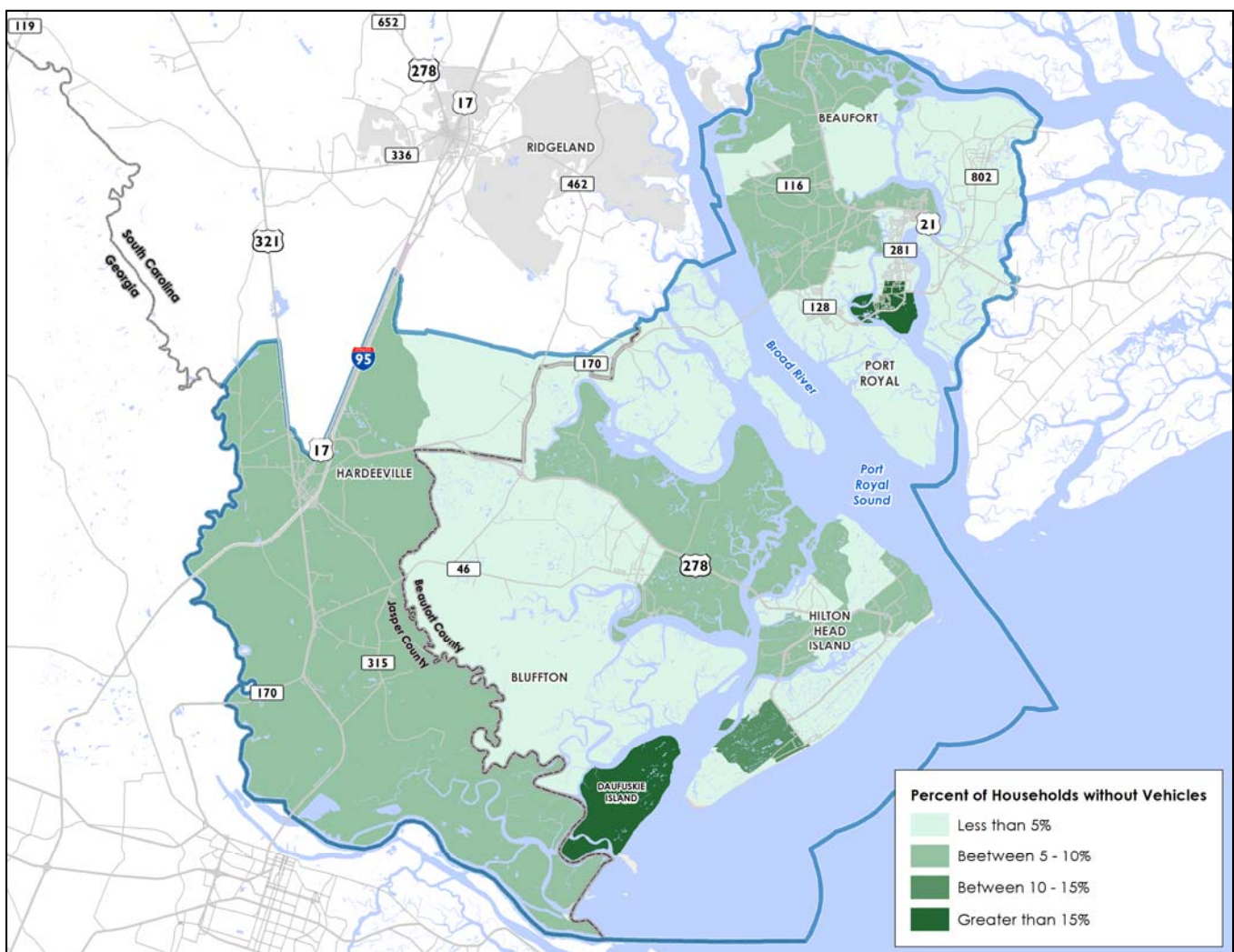
The greatest poverty rates by percentage of families are in Daufuskie Island to the southeast of Bluffton, along US 278 between Bluffton and Hilton Head Island, in the northeastern portion of Hilton Head Island, the city centers of Beaufort and Port Royal, and in northern Beaufort.



Vehicle Ownership

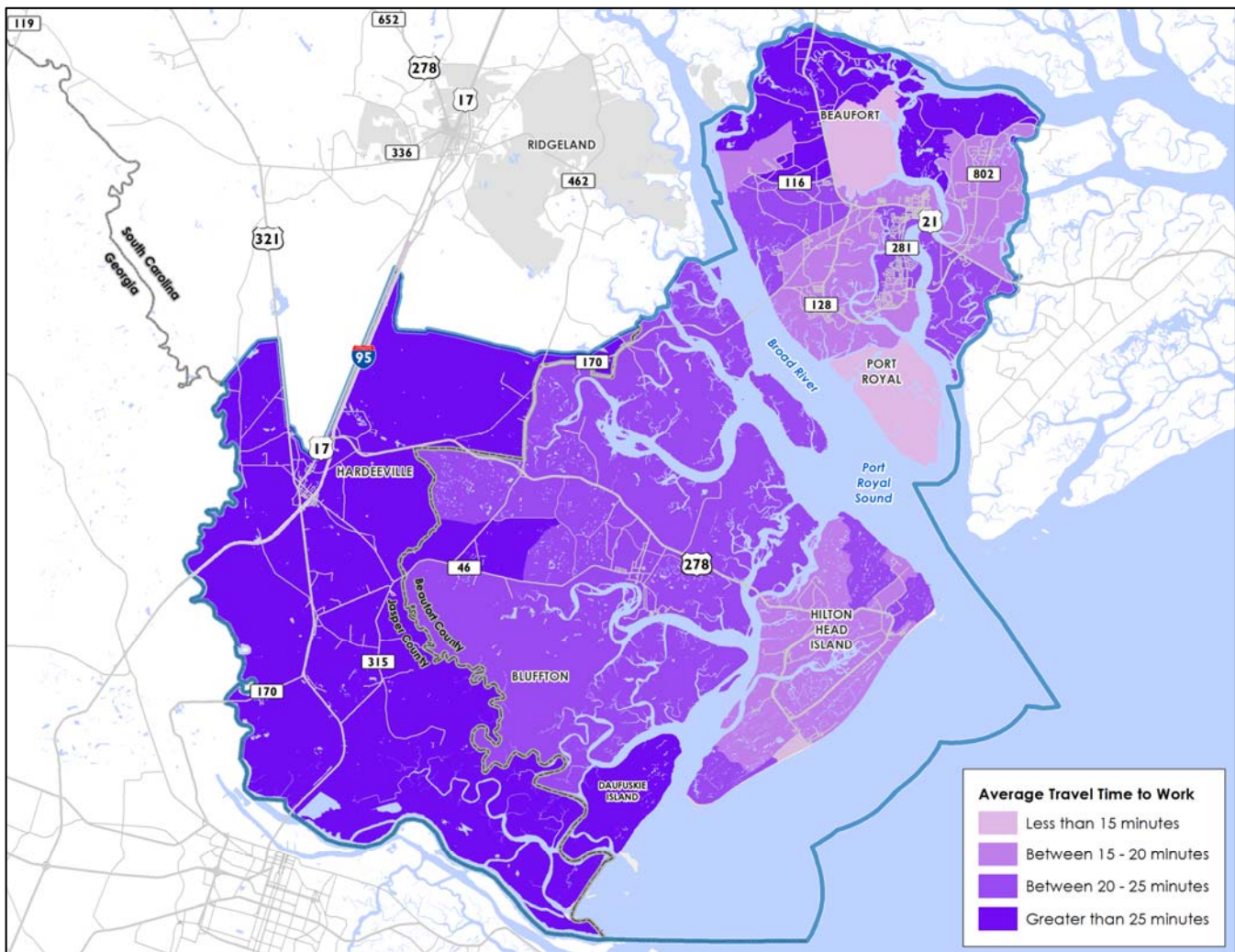
The American Community Survey collects vehicle ownership data by household. Of 72,121 households in the LATS study area, 3,740, approximately 5.2%, do not own a personal vehicle.

The northeastern area of Port Royal and all of Daufuskie Island have the greatest percentages of households without personal vehicles. Specifically, the percentage of households without vehicles is 15.7% and 32.0% in Port Royal and Daufuskie Island, respectively. Daufuskie Island is only accessible by ferry service provided by Palmetto Breeze between the Broad Creek Marina on Hilton Head Island and Freeport Marina on Daufuskie Island.



Travel Time to Work

The average commute time in the LATS area is 22 minutes, according to American Community Survey data. This is less than the average commute time in South Carolina (23.5 minutes) as well as the United States as a whole (25.5 minutes). The area with the shortest travel time to work, 8.6 minutes, is the Marine Corps Air Station in Beaufort. Daufuskie Island and northern Hardeeville experience the greatest average commute times of 47.4 minutes and 30.2 minutes, respectively.



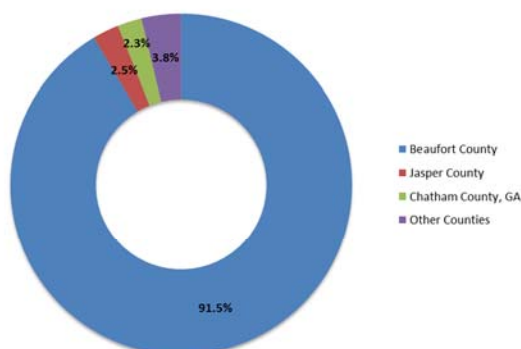
Commuting Patterns

Based on commute flows as reported by the American Community Survey, nine out of every ten residents who live in Beaufort County also work in Beaufort County, while only five out of every ten Jasper County residents work in Jasper County. A significant portion of Jasper County's population, more than one-third, works in Beaufort County. Ten percent of Jasper County's population travels to Chatham County, Georgia, to work.

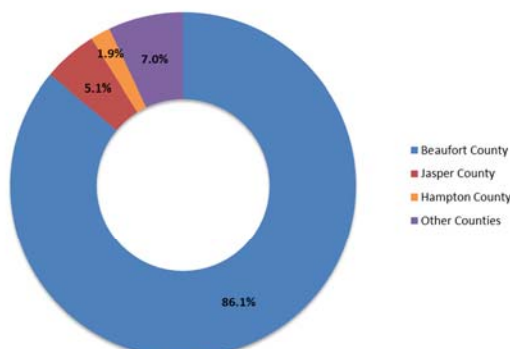
Of the top 25 largest employers in the LATS area, only the Walmart Supercenter and Coastal Carolina Hospital, ranked #18 and #19 in size, are located within Jasper County, resulting in the proportionately large Jasper County to Beaufort home-to-work flow.

Similar to the home-to-work flow patterns in the region, a large majority of the employees who work in Beaufort County also live in Beaufort County. Approximately 60% of Jasper County's workforce resides in Jasper County. Of the other 40%, 21% live in Beaufort County, while 8% live in Hampton County, which borders Jasper County to the northwest.

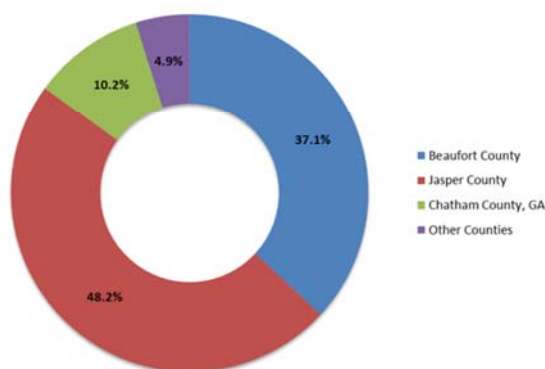
Where Do Beaufort County Residents Work?



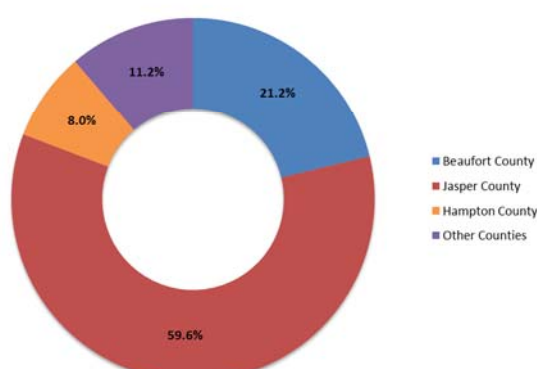
Where Do Beaufort County Workers Live?



Where Do Jasper County Residents Work?



Where Do Jasper County Workers Live?



ID	Historic Properties
1	The Anchorage
2	William Barnwell House
3	Barnwell-Gough House
4	Beaufort Historic District
5	Beaufort National Cemetery
6	Bluffton Historic District – National Register Historic District
7	Church of the Cross
8	John A. Cuthbert House
9	Daufuskie Island Historic District
10	Greens Shell Enclosure
11	Marshlands
12	McLeod Farmstead
13	Michelville
14	Parris Island Drydock and Commanding Generals House
15	Rear Lighthouse of Hilton Head Range Light Station
16	Rose Hill Plantation House
17	F.W. Scheper Store
18	Robert Smalls House
19	Sea Pines Shell Ring
20	Skull Creek Shell Ring
21	St. Luke's Church
22	Stoney-Baynard Plantation
23	Tabby Manse
24	John Mark Verdier House

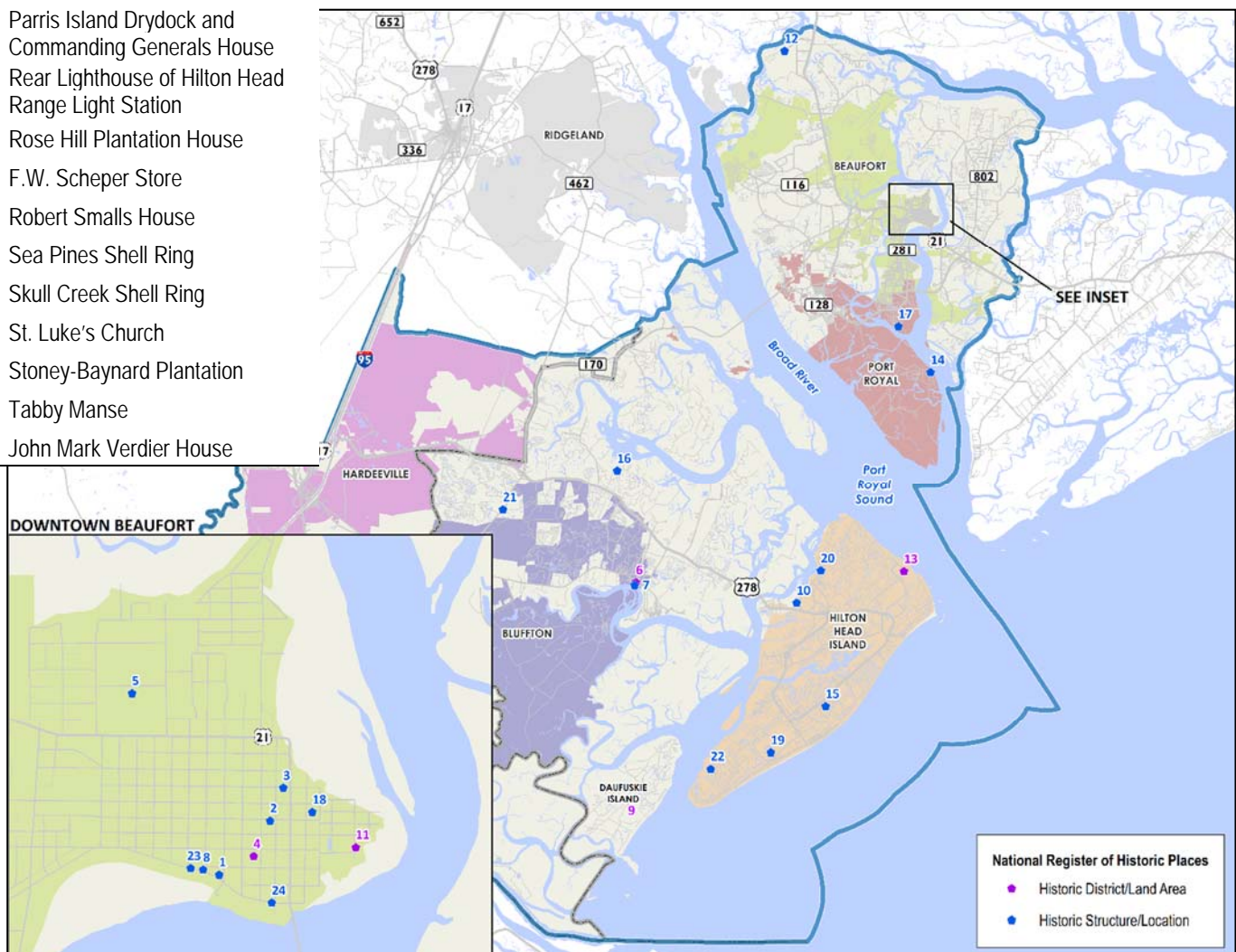
Social and Natural Resources

Sixteen individually listed historic sites and four National Register historic districts are located within the LATS study area as shown in the table to the left and the map below.

Beaufort County is home to two large military bases and a military hospital: the Marine Corps Air Station (MCAS) Beaufort located in northern Beaufort; Parris Island, which is one of just two Marine Corps Recruit Depots (MCRD) in the U.S. as well as the U.S. Naval Hospital Beaufort, which is located on Port Royal Island to the north of Parris Island.

The LATS region is also home to three national wildlife refuges and one Jasper County park:

- Pinckney Island National Wildlife Refuge
- Savannah National Wildlife Refuge
- Sergeant Jasper Park
- Tybee National Wildlife Refuge



Conclusion

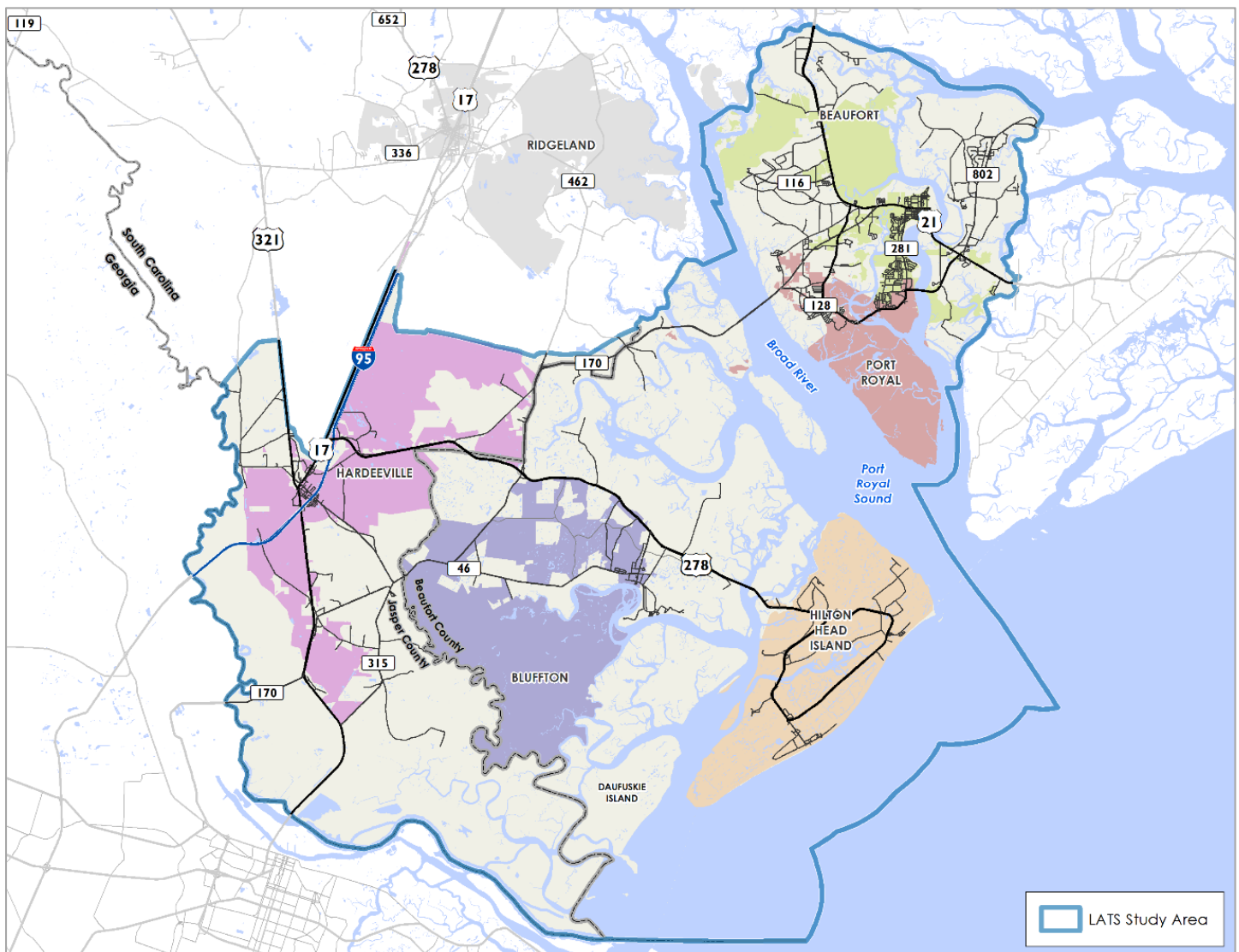
Identifying potential impacts helps balance the competing interests of improving mobility and preserving the region's important social, natural, and cultural resources. The location of these resources must factor into the decision process when determining transportation investments—because it's good practice and it's a federal requirement. Screenings help identify sensitive locations to allow mitigation or avoidance of significant impacts. The earlier these features are identified, the more likely sustainable solutions will arise to minimize or avoid impacts and reduce unnecessary delays and expenses throughout the implementation of the project.

Chapter 4 | Roadway

Introduction

The Roadway chapter of the *2040 LATS Long Range Transportation Plan (2040 LATS LRTP)* describes the planning process for the incorporation of roadway recommendations into the LRTP. A transportation assessment to evaluate existing facilities was completed as a portion of the Regional Profile.

Following this assessment, the region now faces the challenge of efficiently allocating resources to the roadway improvements that are projected to mitigate the perceived transportation issues in the Lowcountry Area region. This chapter seeks to provide useful infrastructure recommendations for the LATS roadway network.



Role in the Region

As shown in the LATS Study Area map, the LATS region includes a collection of municipalities that are anchored to the surrounding region by Interstate 95 and interconnected by arterials. Given the prevalence of natural barriers like the Broad River and the Port Royal sound, a transportation network that operates efficiently to facilitate the movement of people and goods is especially vital. Unique to the LATS region is the challenge of providing access to and within Daufuskie Island, which is only accessible by ferry service from Hilton Head Island.

Relevance to the Long Range Transportation Plan

The inclusion of roadway recommendations is governed by the Guiding Principles of the *2040 LATS LRTP* and the public outreach measures that were conducted by LATS.

Guiding Principle	Relevance of Roadway Recommendations
Congestion Mitigation	Capacity improvement projects, including widening and new location, will increase capacity and promote freight movement, thereby mitigating congestion. Spot improvements at intersections help ease traffic flow and improve safety through operational measures. Access management projects along corridors also seek to reduce congestion.
Livability and Complete Streets	Complete Streets projects have a strong roadway element, since the roadway must be designed with characteristics like low speeds, bike lanes, and crosswalks to facilitate multimodal travel and a sense of place.
Barriers to Mobility	Roadway projects have the potential to reduce the impact barriers to mobility. Bridge construction and evacuation route enhancement projects are a few applications of roadway improvements to the heightening of mobility in the LATS region.
Multimodal Integration	Bike/pedestrian projects are frequently co-located with roadway improvement projects. The inclusion of wide shoulders or bike lanes in a roadway cross-section can facilitate multimodal integration where strategically implemented throughout the roadway network.
Economic Vitality and Tourism	It is a priority to ensure roadway recommendations follow development goals and guidelines for the LATS MPO, so that the transportation network encourages the desired long-term economic growth for the region. While not specifically addressed in this chapter, clear wayfinding can help support regional tourism by providing visitors with a level of comfort as they navigate the area.
Environmental Stewardship	The advancement of roadway projects through the NEPA process once they are included in the TIP supports the protection of the environment. While this process is not explicitly outlined in this chapter, it is a key component of the roadway project evaluation and implementation processes.

Planning Considerations

A regional roadway analysis begins with an assessment of the existing network. Only after observation and documentation of the current facilities can issues be identified and recommendations be made for the future. This chapter moves forward to describe the roadway planning process for the *2040 LATS LRTP* and the recommendations resulting from this process.

Transportation Corridors and Activity Centers

As residential, commercial, and industrial growth occurs and vehicle traffic increases, roadway improvements are needed to reduce traffic congestion and improve safety. These roadway improvements often enhance access, thus raising land values and attracting more development.

Activity Center Type	Characteristics
Regional Activity Center Local Example: <ul style="list-style-type: none"> • Downtown Beaufort Transportation Crossroads: <ul style="list-style-type: none"> • US 21 at SC 281 	<ul style="list-style-type: none"> • Large-scale, transit-supportive center of employee-intensive land uses • Core areas contain large-scale and high intensity urban land uses supported by and serving communities within the region • Accessed by interstates, freeways, or principal arterials, and public transportation • Served by municipal water and sewer • Higher residential densities • Balance between residential/non-residential land uses
Community Activity Center Local Example: <ul style="list-style-type: none"> • Bluffton Town Center Transportation Crossroads: <ul style="list-style-type: none"> • US 278 at SC 46 	<ul style="list-style-type: none"> • Include a combination of retail, personal services, civic, educational, and social uses • Core areas contain medium-scale development that serve the day-to-day needs and activities of the core area occupants and the surrounding neighborhoods • Accessed by principal arterials and public transportation • Served by municipal water and sewer • Medium density residential areas • Land use mix is approximately 60% residential and 40% non-residential
Neighborhood Activity Center Local Example: <ul style="list-style-type: none"> • West Hardeeville Transportation Crossroads: <ul style="list-style-type: none"> • US 321 at US 17 	<ul style="list-style-type: none"> • Mostly residential with a mixed-use core that serves as a focal point for the neighborhood and provides retail and service needs • Accessed by major and minor arterials with integrated collector street access • Mixture of low and medium density residential areas • Transit service provided or desired

The interaction between activity centers and the transportation corridors that link them to other centers is important, as are the mobility choices provided within the center. Often neighborhoods and activity centers rely on few transportation corridors to provide essential links between home, school, employment, shopping, social, and recreational destinations. The extent to which these origins and destinations blend into multi-purpose activity centers has a dramatic effect on a person's ability to choose between modes for their trip. In many cases, the range of trip alternatives (walk, bike, drive, or transit) also influences the overall perception of a community. The Activity Center Type table summarizes three types of activity centers and provides local examples.

The level of success for corridors within and between activity centers largely depends on the street's intended function. A unique challenge for the future will be to balance the area's mobility needs with other priorities. Often, traffic mobility has been given priority without regard for other considerations such as the function of the street, corridor relationship to land use, urban design, and the promotion of alternate modes.

A unique challenge in creating a successful transportation system for the LATS region is blending connectivity and access functions with preservation of natural features and the unique character of the coastal communities. Neighborhoods and smaller communities within the region may have different needs and priorities. While recognizing these differences, it is important not to lose focus of the practical concept of overall connectivity. This concept particularly is relevant as it relates to people's desires to make safe and efficient trips not only by driving but also by walking, bicycling, or using public transportation. The discussion of complete streets in this chapter sets the stage for the region to balance the mobility and access functions of the transportation system through the multimodal recommendations detailed in **Chapters 6 and 7**.

Corridor Characteristics

The roadways in the LATS transportation network can best be characterized in terms of their respective functions and their impact on regional operations.

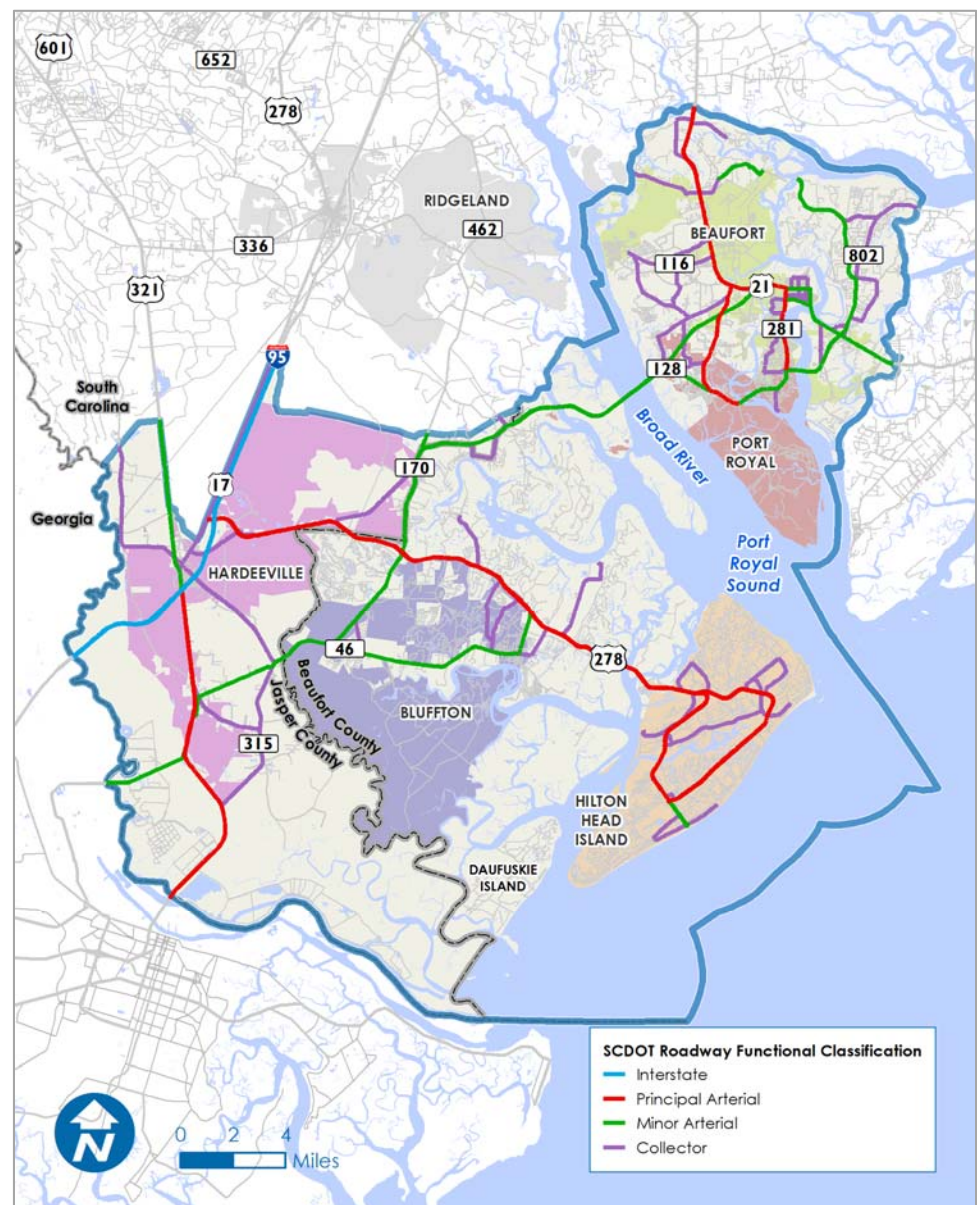
Functional Classification

The classification of streets into several "functional" categories aids in communication among policy makers, planners, engineers, and citizens for expanding the transportation system. The functional classification system groups streets according to the land use served (or to be served) and provides a general designation of the type of traffic each street is intended to serve. The street functional classification system primarily defines the street in terms of roadway design and character, as well as operational features for the movement of vehicles.

Two major considerations for classifying arterials from neighborhood streets are access and mobility. The primary function of local or neighborhood streets is to provide access. These streets are intended to serve localized areas or neighborhoods, including local commercial and mixed-use land uses (i.e. low speeds,

low volumes, and short distances). Local streets are not intended for use by through traffic. The primary function of arterials is mobility. Limiting access points (intersections and driveways) on arterials enhances mobility. Conversely, a focus on mobility at high speeds limits access by pedestrians and bicyclists. The arterial is designed with the intent to carry more traffic than is generated within its corridor (i.e. higher speeds, higher volumes, and longer distances).

Once streets have been classified into these functional categories, they can be further classified to reflect the character of the surrounding landscape. This urban or rural context adds an additional layer of design considerations. For example, an arterial in an urban setting may exhibit different features — curb and gutter, lighting, or bicycle and pedestrian facilities — that are not always present in a rural setting.



The existing public street network in this region is divided into several functional classifications, including arterials, collectors, and locals. The SCDOT Roadway Functional Classification map illustrates the classifications for the LATS roadway network based on SCDOT's functional classification mapping.

Arterials

Arterials provide high mobility, operate at higher speeds (45 mph and above), provide significant roadway capacity, have a great degree of access control, and serve longer distance travel. Arterials can be subdivided into categories that include facilities with full access control such as freeways and expressways as well as major and minor arterials. Arterials usually connect to one another or to collector streets. Very few arterials connect to local streets.

Expressways and Freeways – Expressways and freeways provide the most mobility and least access (since access is only available at interchanges). Expressway /freeway facilities typically serve longer distance travel and support regional mobility. The state funds roadway improvement and maintenance on these facilities. The LATS region is served by Interstate 95. Interstate 95 runs between Miami, FL and the Canadian border, connecting major urban areas such as New York City, Boston, and Washington, D.C. along the way.

Major Arterials – Major arterials typically have tightly controlled access and few, if any, individual site driveways. These facilities serve medium to longer distance travel and connect minor arterials and collector streets to freeways and other higher type roadway facilities. Generally, roadway improvements and maintenance on major arterials are funded by the state. The LATS region serves as the eastern terminus for US 278, which originates west of Augusta and continues southeast toward the coast across portions of Georgia and South Carolina. Other major arterials within the LATS region include US 17 (Speedway Boulevard), SC 281 (Ribaut Road), US 21, and SC 170 (Okatie Highway).

Minor Arterials – Minor arterials primarily serve a mobility function but often have more closely spaced intersections, some individual site driveways, and generally lower design and posted speeds compared to other arterials. The minor arterial network is primarily intended to serve local travel demand. These roadways connect to other minor arterials, to major arterials, and to collector streets. Minor arterials provide a higher level of access to adjacent land uses than major arterials and typically have lower traffic volumes. For the most part, minor arterials are maintained by the state, but the cost of improvement may be the responsibility of local governments.

Minor arterials in the LATS region include two-lane undivided and multi-lane roads with little or no paved shoulders. They typically have occasional left-turn lanes at intersections and major driveways and have posted speed limits ranging from 35 mph to 45 mph. Other characteristics may include sidewalks, signalized intersections, and on-street parking (in residential areas and the centralized business district). Minor arterials in the LATS region include SC 46 (May River Road), SC 128 (Savannah

Highway), SC 315 (S Okatie Highway), Bluffton Parkway, Buckwalter Parkway, and SC 802 (Sams Point Road).

Collectors

Collectors typically provide less overall mobility, operate at lower speeds (less than 35 mph), have more frequent and greater access flexibility with adjacent land uses, and serve shorter distance travel than arterials. Collectors provide critical connections in the roadway network by bridging the gap between arterials and locals. Thus, the majority of collector streets connect with one another, with local streets, and with non-freeway/expressway arterials.

The primary purpose of the collector street system is to collect traffic from neighborhoods and distribute it to the system of major and minor arterials throughout an area. In general, collector streets have two lanes and often have exclusive left-turn lanes at intersections with major and minor arterials and less frequently at intersections with other collector streets. Responsibility for collector streets usually falls to the local government and the development community for funding, design, and construction. In the LATS region, collector streets have a wide range of physical characteristics, some of which are attributable to the neighborhoods in which they exist. Though different, the one commonality is that of providing good connectivity.

Examples of collector streets in the LATS region include Simmonsville Road, Brickyard Point Road, Marshland Road, and SC 46 (Plantation Drive).

Locals

Local facilities provide greater access and the least amount of mobility. These facilities typically connect to one another or to collector streets and provide a high level of access to adjacent land uses/development (i.e., frequent driveways). Locals serve short distance travel and have low posted speed limits (25 mph to 35 mph). Most roadways within the LATS region are classified as locals.

Corridor Operations

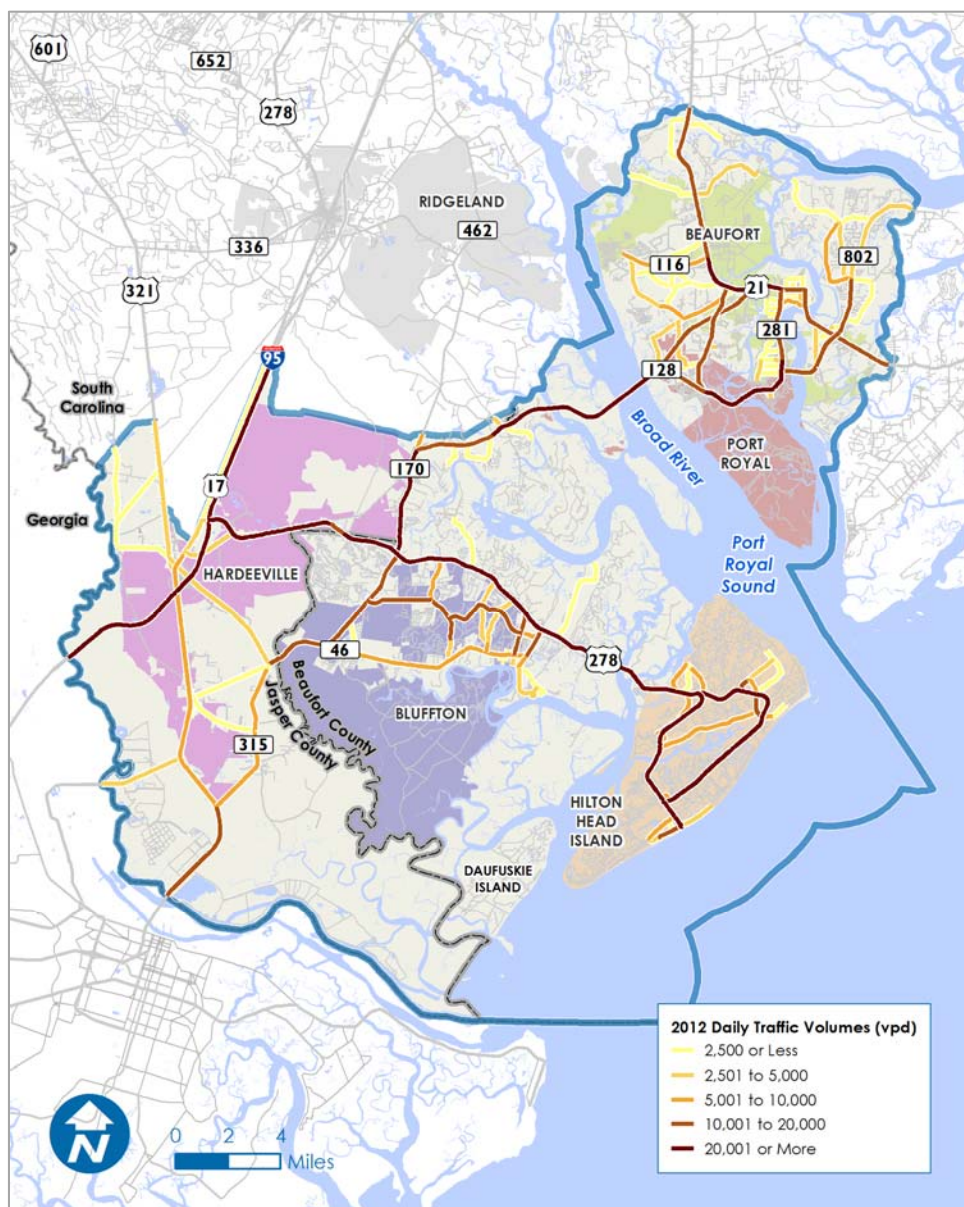
Regional Mobility

The LATS region benefits from having multiple options for regional mobility. This mobility is augmented by I-95, which connects the region with many major eastern cities. In addition, routes such as US 17, US 21, and US 278 serve as critical inter and intra-regional transportation corridors, connecting points in the LATS region such as downtown Beaufort, the US Naval Hospital at Port Royal, and Hilton Head Island with cities across South Carolina and Georgia.

Average Annual Daily Traffic

Traffic volumes signify the total number of vehicles traveling along a roadway segment on an average day. The 2012 Daily Traffic Volumes map illustrates 2012 average annual daily traffic (AADT) volumes on study roadways in Jasper and Beaufort Counties. The area's highest traffic volume of 50,700 vehicles per day

occurs on US 278 between Moss Creek Drive and Spanish Wells Road. Through the study area, volumes on I-95 range between 45,000 and 50,000 vehicles per day (vpd). Other notable corridors with traffic volumes in excess of 20,000 vpd include segments of SC 170, SC 128, and US 21. Overall, traffic volumes on facilities classified as collector streets are lower than those on minor arterials, and traffic volumes on minor arterials are lower than those on principal arterials. This tendency reflects the purpose and function of each roadway class design and location.

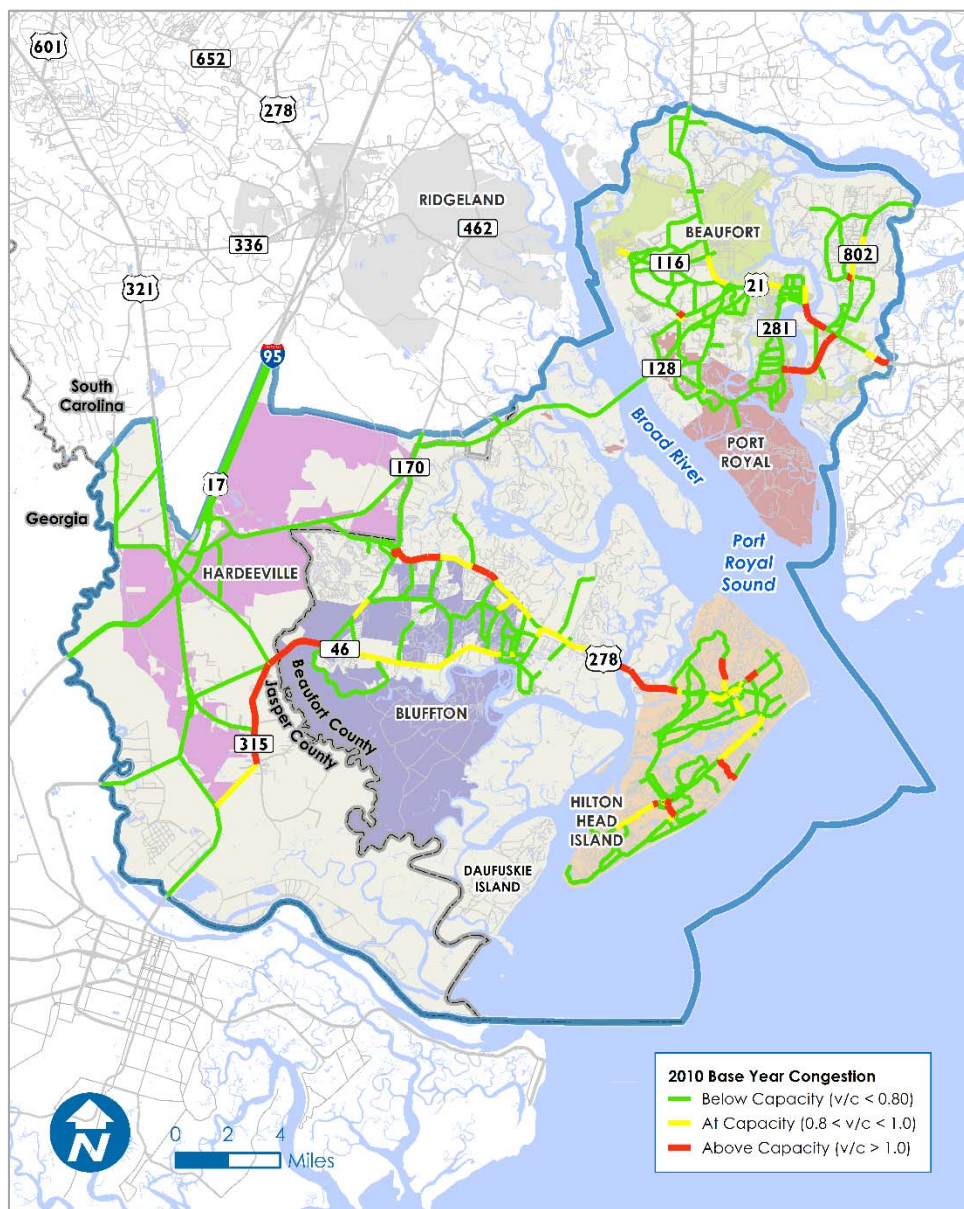


Congested Corridors

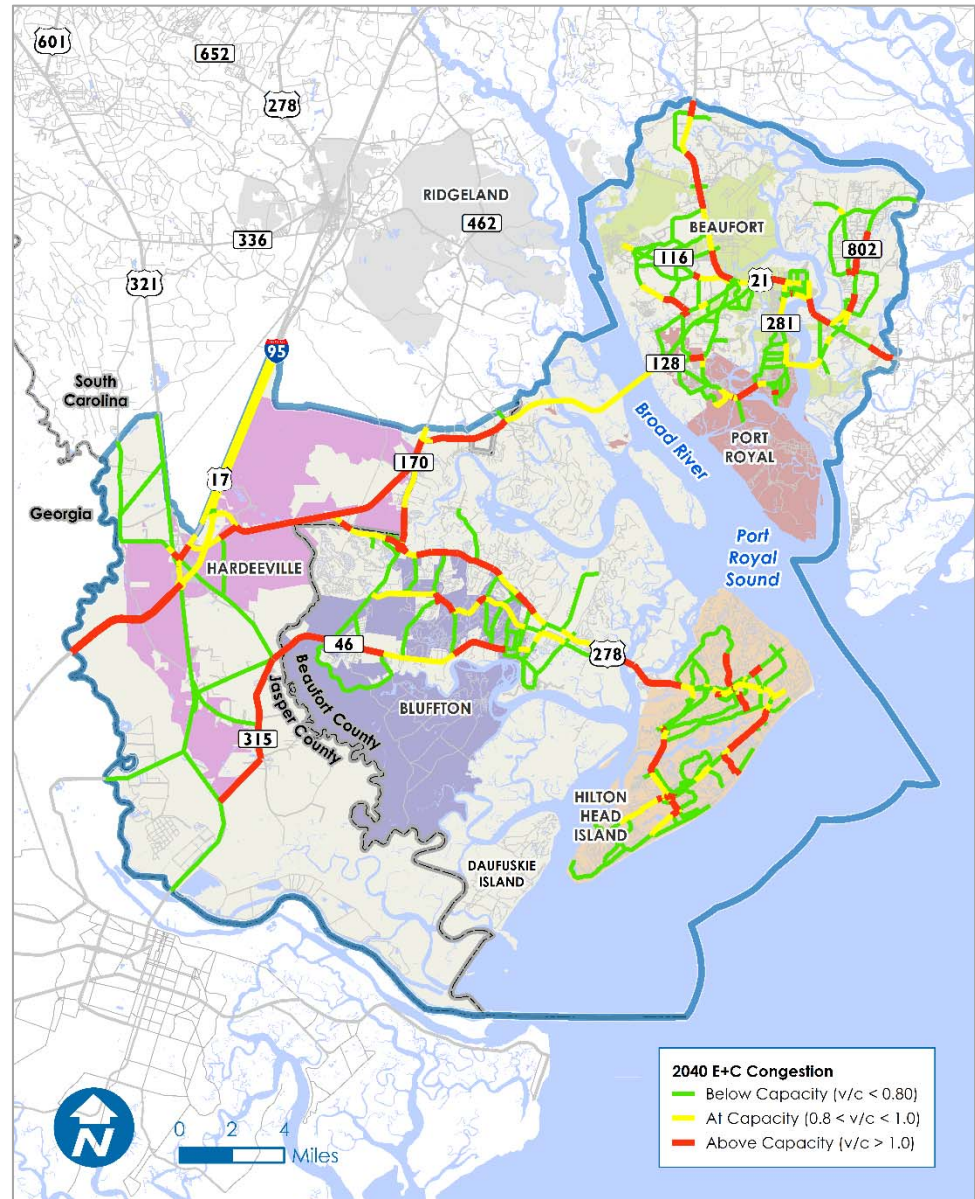
Traffic volumes alone should not be used to determine congested corridors because this measurement does not take into account functional classification and roadway capacity. A better measurement is volume-to-capacity (V/C) ratios. V/C ratios are calculated by dividing the traffic volume of a roadway segment by the theoretical capacity of the roadway. The resulting universal measurement standardizes traffic analysis and provides a benchmark for levels of congestion. In the *2040 LATS LRTP* roadways are grouped into one of the following categories based on their V/C ratios:

- **Below Capacity** (V/C = less than 0.80) – Roadways operating with a V/C ratio less than 0.80 operate with little or no congestion during peak travel periods. This level of service usually occurs on rural or local streets.
- **At Capacity** (V/C = 0.8 to 1.0) – Roadways operating at capacity are somewhat congested during non-peak periods, with congestion building during peak periods. A change in capacity due to incidents impacts the travel flow on corridors operating within this V/C range. Roadways in this category most efficiently balance corridor operations with cost of infrastructure.
- **Above Capacity** (V/C = greater than 1.0) – Roadways operating with V/C ratios over 1.0 experience heavy congestion during peak periods and moderate congestion during non-peak periods. Changes in capacity can have major impacts on corridors and may create gridlock conditions. When a roadway's V/C ratio is over 1.2, the roadway is congested during non-peak hours and most likely operates in stop-and-go gridlock conditions during the morning and evening peak travel periods. Congestion along corridors is related to numerous factors but often results from bottlenecks, primarily at intersections, along the corridor. Aside from individual bottleneck locations in corridors, congestion also occurs when too many people use a route that already operates at or over-capacity.

The 2010 Base Year Congestion map shows congested corridors in the LATS region with 2010 volumes. Roadways identified as congested in this map were part of the foundation for determining future improvements intended to alleviate congestion and improve the overall transportation system.



The 2040 E+C (Existing Plus Committed) Congestion map shows projected future congestion along the same corridors based on the 2040 travel demand model. The model includes all existing and committed roadway projects. When the two congestion maps are compared, it is evident that congestion is expected to worsen along several roadways, including I-95, US 278, SC 46, SC 170, and Argent Boulevard. However, reduced congestion can be seen on portions of US 21.



Complete Streets

"Complete streets" are community-oriented streets that safely and conveniently accommodate multiple modes of travel. Common goals for complete streets include economic vitality, business retention and expansion, and public safety, which align with the guiding principles of the *2040 LATS LRTP*. Creating a complete street requires community support and leadership as well as coordination among planners, urban designers, transportation engineers, utility experts, and land development specialists. Successful complete streets programs include the following principles:

- Achieve community objectives.
- Blend street design with the character of the area served.
- Capitalize on a public investment by working diligently with property owners, developers, economic development experts, and others to spur private investment in the area.
- Design in balance so traffic demands do not overshadow the need to walk, bicycle, and ride transit safely, efficiently, and comfortably. The design should encourage people to walk.
- Empower citizens to create their own sense of ownership in the success of the street and its numerous characters.

The *2040 LATS LRTP* seeks to achieve a balance between regional mobility and multimodal accessibility to provide effective transportation facilities for both automobile traffic and multimodal travelers. The map and table in the recommendations section shows the identification and graphic display of roadway infrastructure projects that are co-located with bike and pedestrian improvement projects.

Public Perception

Public outreach was a key component of the planning process for the *2040 LATS LRTP*, because local drivers have firsthand experience with LATS transportation issues. Stakeholder interviews and community workshops were conducted in the spring of 2014 to guide the planning process. Online outreach options were also utilized in order to capture a fuller picture of the public perception of regional transportation needs.

Stakeholder Interviews

Stakeholders voiced the following concerns relevant to roadway projects:

- A lack of connectivity exists in the roadway network.
- Development agreements promote cul-de-sacs.
- Barriers and shoulders along roadways would encourage biking.

Community Workshops

At the interactive community workshops, participants were asked to prioritize the six guiding principles of the *2040 LATS LRTP*, resulting in the list below:

1. Livability and Complete Streets
2. Barriers to Mobility
3. Multimodal Integration
4. Economic Vitality and Tourism
5. Environmental Stewardship
6. Congestion Mitigation

Online Outreach

In order to gather feedback from stakeholders and community members who were unable to attend the scheduled meetings, online resources were also made available.

An online survey was offered as one avenue through which community members could provide their perceptions of regional transportation issues. The questionnaire included questions about traffic, connectivity, and multimodal travel. The following responses related to roadway infrastructure improvements were recorded:

- 55% of respondents use a personal vehicle to commute to work, and 83% use a personal vehicle for non-work purposes.
- 42% of respondents said that traffic congestion is a current problem in the community, while 84% predicted it would be a problem in ten years.
- Only 24% of respondents affirmed that the existing transportation system meets the needs of all of the region's citizens.
- A combined 90% of respondents rated the traffic flow of the current transportation network as "good" or "fair," with only a few classifying the flow as "excellent" or "poor."
- Safety, efficiency of system, and congestion were identified as top factors that should be considered when determining the allocation of funding for transportation projects.

Recommendations

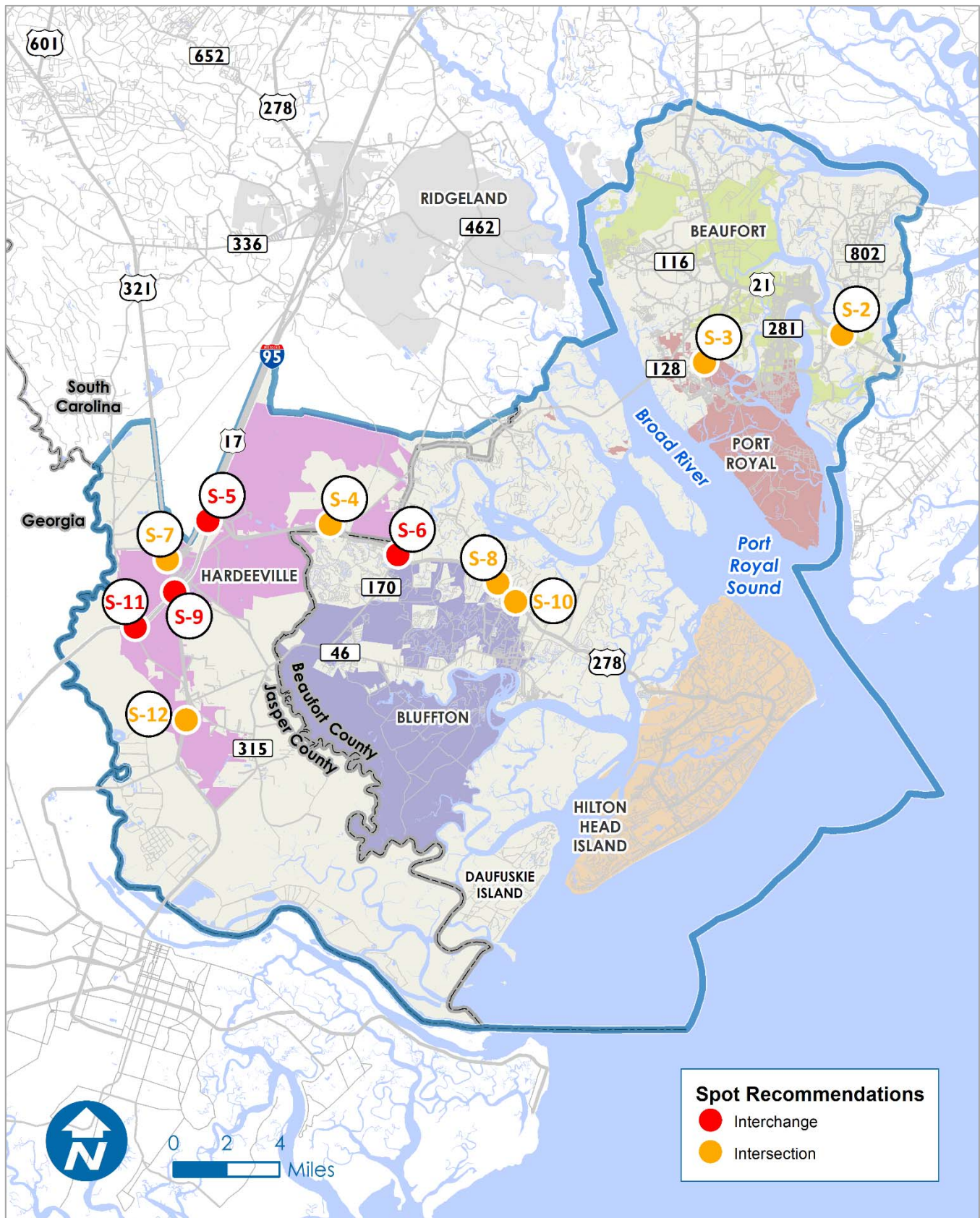
This section summarizes roadway infrastructure recommendations that have been reviewed by the LATS Board.

Roadway Recommendations

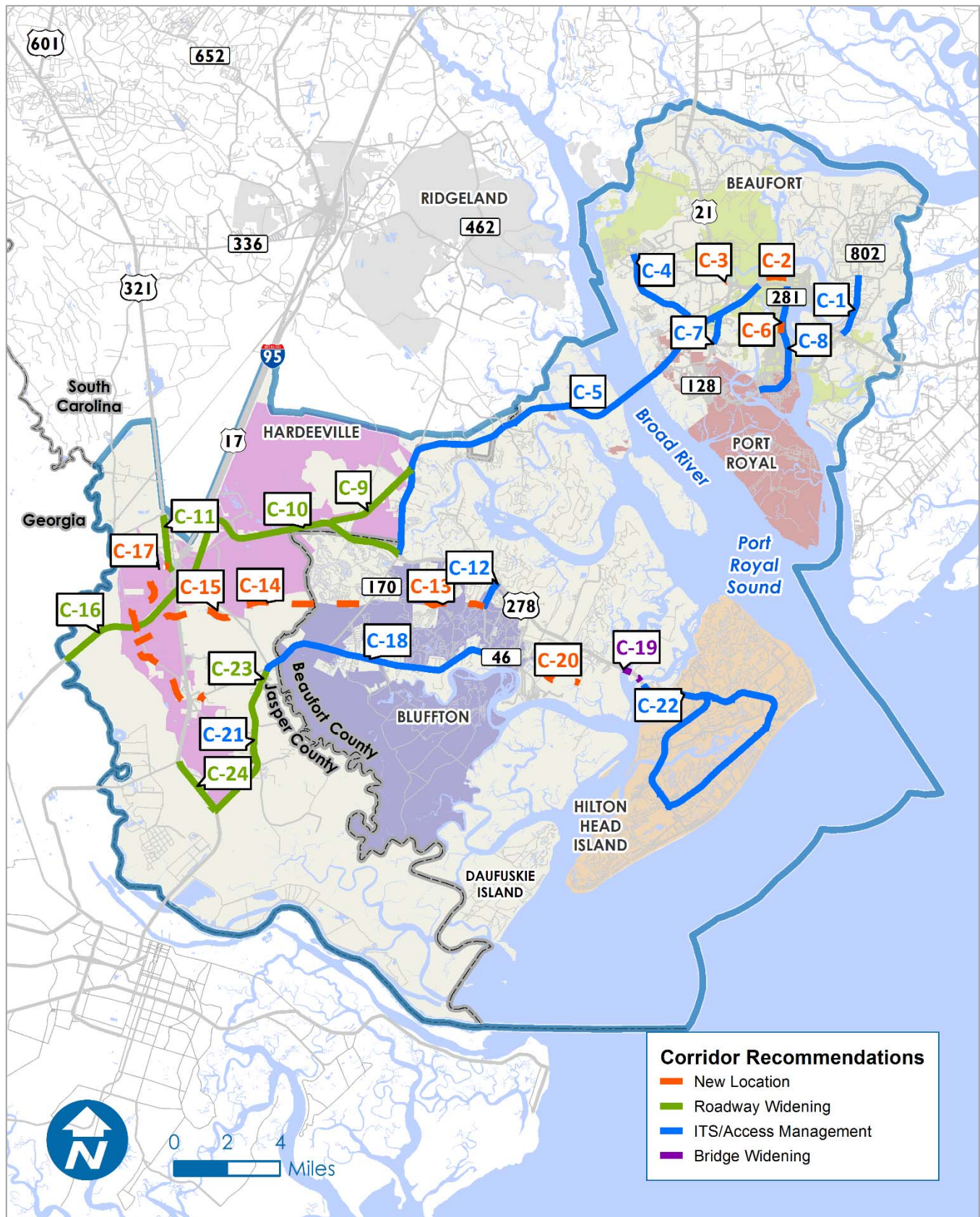
- The following section describes the corridor and intersection recommendations for the *2040 LATS LRTP*. These improvements include new location roadways, roadway widening, access management improvements, interchange and intersection improvements, and enhancements to the collector street network. Each recommendation was developed in concert with the recommendations shown in Chapters 5 through 8. This coordinated approach is most evident in the number of incidental improvements to the bicycle and pedestrian network. Projects identified as short-term were carried forward and supplemented by those identified as deficient by the region's travel demand model or through the public input process. The roadway recommendation maps identify these locations by improvement type. Proposed collector street locations shown here represent a potential subset of future locations. Future collector street locations and alignments will be determined by collaborating with the development community, local jurisdictions, and the state.

Detailed information about individual projects can be found in the project sheets, which will be attached as a separate Appendix to the *2040 LATS LRTP*.

Project ID	Spot Recommendations	Type
S-2	US 21 and SC 802	Intersection
S-3	US 21 and Grober Hill Rd (S-7-23)	Intersection
S-4	US 278 and Argent Blvd (S-442)	Intersection
S-5	I-95 and US 278	Interchange
S-6	US 278 and SC 170	Interchange
S-7	US 321 and SC 46	Intersection
S-8	US 278 and Buck Island Rd (S-29)	Intersection
S-9	I-95 and US 17	Interchange
S-10	US 278 and Simmonsville Rd (S-7-474)	Intersection
S-11	I-95 and Riverport Pkwy	Interchange
S-12	US 17 and SC 170	Intersection



Project ID	Corridor Recommendations	Type	Length (miles)
C-1	SC 802 from US 21 to Brickyard Point Rd / Holly Hall Rd	ITS/Access Management	2.34
C-2	from S-281 to S-167	New Location	0.75
C-3	from US 21 to S-73	New Location	0.07
C-4	Joe Frazier Rd from SC 116 to Broad River Blvd	ITS/Access Management	3.48
C-5	SC 170 from US 278 to US 21 Bus	ITS/Access Management	19.34
C-6	from Myrtle St to Reynolds St	New Location	0.42
C-7	US 21 from Mink Point Blvd to SC 170	ITS/Access Management	1.22
C-8	Ribaut Rd (US 21 / SC 281) from Lenora Rd to US 21 Bus	ITS/Access Management	4.77
C-9	Argent Blvd from US 278 to SC 170	Roadway Widening	4.13
C-10	US 278 from I-95 to SC 170	Roadway Widening	7.85
C-11	US 321 from US 17 to Honey Hill Rd	Roadway Widening	2.17
C-12	Buck Island Rd from Bluffton Pkwy to US 278	ITS/Access Management	1.06
C-13	Bluffton Pkwy from Buckwalter Pkwy to Buck Island Rd	New Location	2.30
C-14	Bluffton Pkwy from Riverport Pkwy to SC 170	New Location	9.52
C-15	from Bluffton Pkwy to SC 46	New Location	0.41
C-16	I-95 from Georgia state line to US 278	Roadway Widening	8.16
C-17	Riverport Pkwy from SC 170 to US 321	New Location	8.02
C-18	SC 315 / SC 46 from SC 170 to Pin Oak St	ITS/Access Management	9.74
C-19	US 278 bridges over Mackay Creek and Skull Creek	Bridge Widening	0.47
C-20	Stroup Lane extension from Burnt Church Rd to Buckingham Plantation Dr	New Location	1.87
C-21	SC 315 / SC 46 from US 17 to SC 170	ITS/Access Management	6.10
C-22	US 278 / US 278 Bus in Hilton Head Island	ITS/Access Management	16.73
C-23	SC 315 / SC 46 from US 17 to SC 170	Roadway Widening	6.10
C-24	US 17 from SC 170 to SC 315	Roadway Widening	2.40
C-25	US 17 from GA state line to SC 315	Roadway Widening	4.22



Prioritization Process

To best understand how to allocate the region's limited financial resources, it was important to establish priorities for widening, new location, and intersection improvement projects. To balance priorities, project evaluations need to go beyond traffic impacts to consider cultural, environmental, economic, multimodal, and land use considerations. Recognizing the need to create a balanced prioritization to establish project rankings, South Carolina passed Act 114 in 2007, which added Sections 57-1-370 and 57-1-460 to the South Carolina Code of Laws. These sections provide details of the ranking process to be used by SCDOT as well as its affiliated MPOs and councils of government (COGs).

Roadway projects recommended in the *2040 LATS LRTP* were evaluated using a priority ranking process that was required to be consistent with Act 114 guidance and SCDOT best practices. The criteria also had to reflect the needs and priorities of the MPO area. The LATS Technical Committee developed roadway project prioritization criteria in collaboration with SCDOT and FHWA. As a new MPO, LATS leaned on the existing Lowcountry COG priority ranking process, the SCDOT priority ranking process, and other COG and MPO ranking processes around the state.

To remain consistent with the structure of the *2040 LATS LRTP*, prioritization criteria have been organized according to the plan's guiding principles. Projects are separated by roadway corridors and intersections/interchanges. The evaluation measures used to assess each project are shown here along with their potential point ranges.

Corridors

Congestion Mitigation

Existing V/C ratio (0 to 15)

Future V/C ratio (0 to 10)

ITS or signal system improvements (0 to 5)

Livability and Complete Streets

Consistency with local land use plans

Incorporates complete streets/ context sensitive solutions (0 or 5)

Barriers to Mobility

Public safety (0 to 15)

Hurricane evacuation (0 to 5)

Pavement quality (0 to 5)

Multimodal Integration

Existing or proposed multimodal facilities (0 or 5)

Economic Vitality and Tourism

Economic development (0 to 10)

Truck traffic (0 to 5)

Environmental Stewardship

Blend of natural, social, and cultural resources (0, 5, or 10)

Financial Viability

Project cost estimate compared with annual guideshare funding (0, 3, or 5)"

Intersections/Interchanges

Congestion Mitigation

Existing V/C ratio (0 to 15)

Future V/C ratio (0 to 10)

ITS or signal system improvements (0 to 5)

Livability and Complete Streets

Consistency with local land use plans

Incorporates complete streets/ context sensitive solutions (0 or 5)

Barriers to Mobility

Public safety (0 to 30)

Hurricane evacuation (0 to 5)

Traffic status (0 to 5)

Multimodal Integration

Existing or proposed multimodal facilities (0 or 5)

Economic Vitality and Tourism

Economic development (0 to 10)

Truck traffic (0 to 5)

Environmental Stewardship

Not scored at the intersection level (consistent with SCDOT approach)

Financial Viability

Project cost estimate compared with annual guideshare funding (0, 3, or 5)

Access Management

The Federal Highway Administration (FHWA) defines access management as “the process that provides access to land development while simultaneously preserving the flow of traffic on the surrounding system in terms of safety, capacity, and speed.” According to the Access Management Manual, access management results from a cooperative effort between state and local agencies and private land owners to systematically control the “location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a roadway.”¹ Access management requires cooperation between government agencies and private land owners. Poor access management directly affects the livability and economic vitality of commercial corridors, ultimately discouraging potential customers from entering the area. Corridors with poor access management often have higher crash rates, greater congestion, and more spillover cut-through traffic on adjacent residential streets. Overall, poor access management increases commute times, creates unsafe conditions, lowers fuel efficiency, and increases vehicle emissions.

Access Management Toolbox

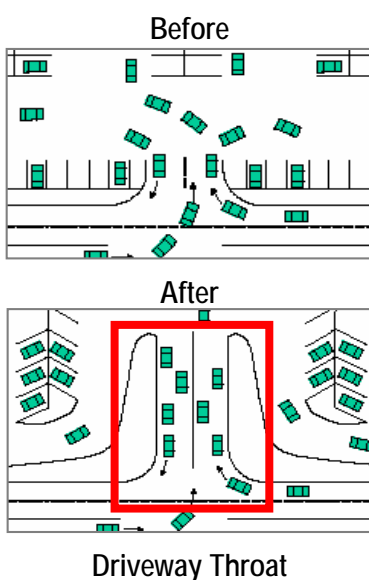
Access management is not a one-size fits all solution to corridor congestion, and a diversity of techniques could be considered in the LATS region. The toolkit that follows provides a general overview of the various strategies available to manage congestion and its negative effects. A comprehensive access management program includes evaluation methods and supports the efficient and safe use of the corridors for all transportation modes. The purpose of the toolkit is to provide local engineering and planning officials with access management techniques as well as an overview of their application.

The access management solutions outlined in this section can be divided into four major categories: site access treatments, median treatments, intersection and minor street treatments, and intelligent transportation systems. An overview of these four major categories is included here.

Site Access Treatments

Improvements that reduce the total number of vehicle conflicts should be a key consideration during the approval of redeveloped sites along corridors identified for access management programs. Site Access Treatments include the following:

- Improved On-Site Traffic Circulation
- Number of Driveways
- Driveway Placement/Relocation
- Cross-Access to Adjacent Sites



¹ Access Management Manual, Transportation Research Board, National Academy of Sciences, Washington DC, 2003

Median Treatments

Segments of a corridor with sufficient cross access, backdoor access, and on-site circulation may be candidates for median treatments. A median divided roadway improves traffic flow, reduces congestion, and increases traffic safety — all important goals of access management. While medians restrict some left-turn movements, overall traffic delays are reduced by removing conflicting vehicle movements from the corridor. Landscaping and gateway features incorporated into median treatments improve the aesthetics of the corridor, in turn encouraging investment in the area and contributing to the overall quality of the surrounding environment. Median Treatments include the following:

- Non-Traversable Median
- Median U-Turn Treatment
- Directional Cross (Left-Over Crossing)
- Left-Turn Storage Bays
- Offset Left-Turn Treatment



Directional Crossover (Left-Over)



Intersection and Driveway Curb Radii

Intersection and Minor Street Treatments

The operation of signalized intersections can be improved by reducing driver confusion, establishing proper curb radii, and ensuring adequate laneage of minor street approaches. Intersection and Minor Street Treatments include the following:

- Skip Marks (Dotted Line Markings)
- Intersection and Driveway Curb Radii
- Minor Street Approach Improvements

Intelligent Transportation Systems

Intelligent Transportation Systems (ITS) have many potential benefits when implemented in concert with an overall transportation management strategy. ITS solutions use communications and computer technology to manage traffic flow in an effort to reduce crashes, mitigate environmental impacts such as fuel consumption and emissions, and reduce congestion from normal and unexpected delays. Successful systems include a variety of solutions that provide surveillance capabilities, remote control of signal systems components, seamless sharing of traveler information with the public, and even allow emergency vehicles to have priority to proceed safely through signalized intersections. Several of these solutions have been implemented throughout the LATS area. Intelligent Transportation Systems include the following:

- Signalization
- Progression-Controlled Signal System
- Dynamic Message Signs (DMS)
- Emergency Vehicle Preemption



Dynamic Message Sign



Emergency Vehicle Preemption

Access Management Corridors

At the January 29th Technical Committee meeting, five corridors and five intersections were selected for a slightly more detailed review of existing conditions and potential solutions. The Technical Committee was asked to provide insight into the locations for which they were familiar. This discussion helped to refine the list of corridors that were evaluated for access management improvements.

Five segments initially were identified as strategic access management corridors:

Ribaut Road – Boundary Street to Allison Road (Beaufort)

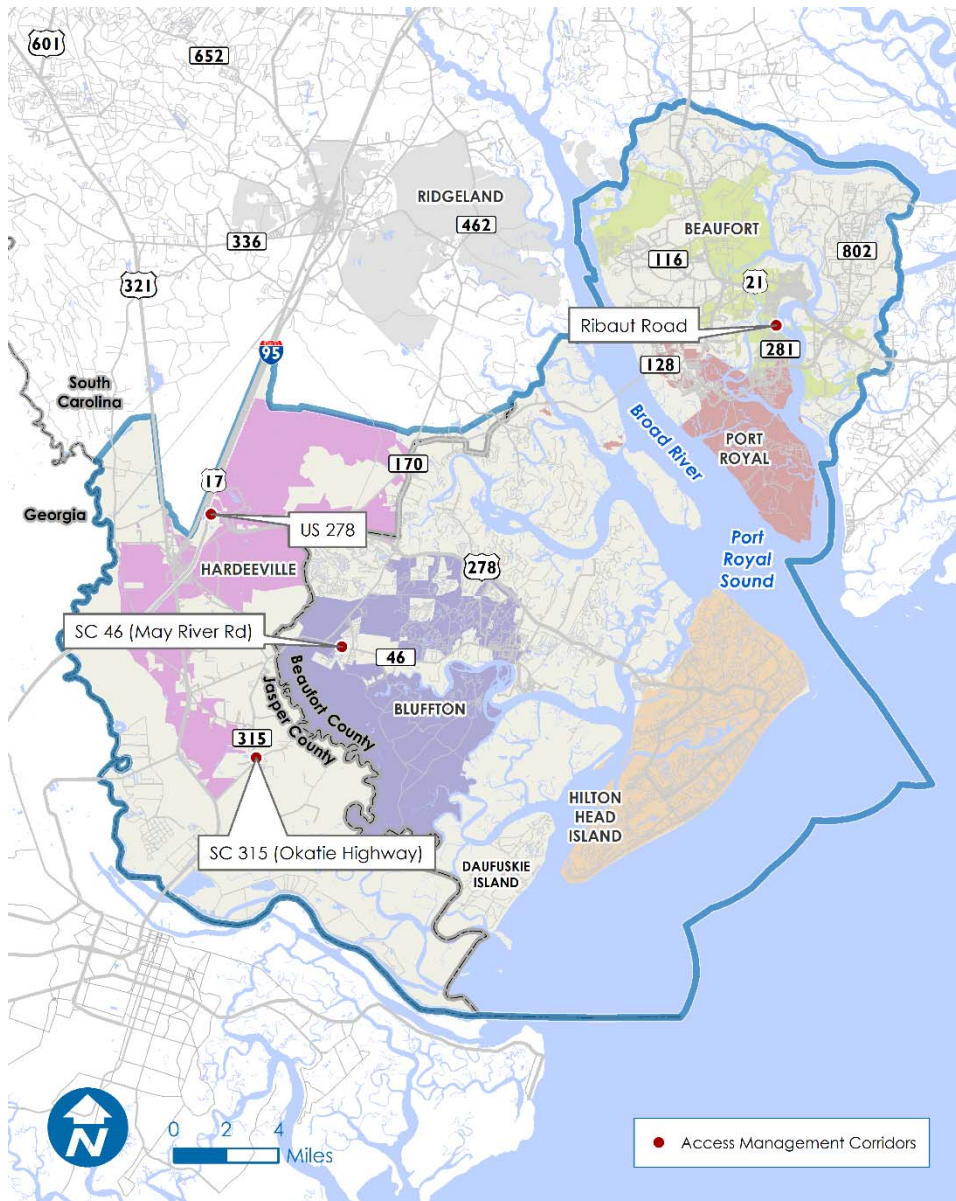
SC 46 (May River Road) – Stardust Lane to Gibbet Road (Pritchardville)

SC 315 (Okatie Highway) – McDowell Circle to Roper Road (Hardeeville)

US 278 – US 17 (Whyte Hardee Boulevard) to Medical Center Drive

SC 170 (Okatie Highway) – US 278 to Bull Hill Road (Bluffton)

After the meeting, SC 170 (Okatie Highway) was removed from further consideration due to work in process from SCDOT. As is evident from the Access Management Corridors map, the four remaining strategic corridors are located throughout the LATS region. The access management corridor exhibits developed for these locations offer potential solutions tailored to the corridor and serve as a guide for similar corridors in other parts of the study area. These exhibits are included in Appendix B.



Chapter 5 | Safety and Security

Introduction

Starting with the adoption of the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) and continuing with the adoption of the Moving Ahead for Progress in the 21st Century Act (MAP-21), the federal government established safety and security as independent planning factors for consideration in long range transportation plans. The *2040 LATS LRTP* assesses existing safety and security conditions, explores planning considerations for safety and security, and provides recommendations for future improvements.

Role in the Region

Safety and security are prominent goals for any LRTP. In the context of transportation planning, safety generally refers to the protection of the individual traveler. The implementation of safety measures at high priority intersections in the LATS study area, the enforcement of up-to-date SCDOT roadway design standards that maximize driver safety, and the prioritization of regional projects that eliminate roadway hazards are all safety-related endeavors.

Security refers to the macro level. Transportation security measures seek to mitigate threats to the region as a whole and to assess the impact of transportation improvements on the access of community members to emergency services. Ensuring that the capacities of strategic corridors and bridges are maintained or improved also promotes the security of the LATS region.

While this plan seeks to meet all of the typical safety and security needs of the LATS area, as an LRTP for a coastal region it must also give special consideration to the likelihood of hurricanes, placing considerable emphasis on evacuation routes and shelters.

Relevance to the Long Range Transportation Plan

As noted in Chapter 2 ("Guiding Principles"), two goals of the *2040 LATS LRTP* are:

- Goal #6: Enhance the safety of the transportation system for all users.
- Goal #7: Enhance the security of the transportation system for all users.

The safety and security measures described in this chapter are the result of SCDOT crash data, public outreach, and a high-level analysis of regional needs. The impacts of safety and security improvements inevitably reverberate throughout the rest of the *2040 LATS LRTP*, as these categories encompass all modes of travel, including driving, biking, walking, transit, freight, and aviation.

Planning Considerations

Safety and Transportation Planning

According to information provided on the Insurance Institute for Highway Safety and Highway Loss Data Institute website, in 2013 South Carolina had the fifth highest fatality rate in the nation. According to crash data provided and analyzed by SCDOT, Beaufort and Jasper Counties had a combined fatality rate of 1.684 in 2014, comparable to the statewide fatality rate of 1.658, and significantly higher than the average rate for all South Carolina MPOs, which was 1.096. Based on this data, it is essential to look at potential solutions for mitigating some of these issues in the LATS region.

For safety fully to be integrated into the transportation planning process, it must be a focus at all levels of planning — from the US Department of Transportation to local neighborhoods. At the federal level, MAP-21 has established this focus. Other programs at the state and federal level target work zones, older drivers, bicyclists, and pedestrians. Through the LRTP process, residents of the LATS region highlighted safety concerns that face all travel modes. The following guidelines are presented to ensure safety remains a core component of transportation planning for LATS.

Engineering

The roadway recommendations presented in this plan represent a series of engineering enhancements that should improve traffic flow while increasing safety for all users. LATS also has emphasized safety planning by incorporating the crash analysis provided by SCDOT into the LRTP to identify high priority crash locations throughout the planning area.

General engineering strategies to maximize safety include: improving highway and road design guidelines; implementing corridor-based ITS and access management strategies; identifying appropriate intersection improvements to mitigate crashes; constructing a coordinated network of on-street bicycle facilities and off-street trails; designing streets to be pedestrian-friendly; designating appropriately designed streets for truck freight; and maintaining adequate standards for railroad crossings.

Enforcement

Enforcement activities typically include ways to monitor and maintain the appropriate behaviors of road users (motorists, bicyclists, pedestrians, and transit users). These activities usually include law enforcement participation, task forces, and partnerships with organizations dedicated to improving safety. Safety initiatives being pursued at the state and federal level include "Buckle Up South Carolina", "Sober or Slammer", and "Target Zero". The MPO can partner with state agencies and local governments to support enforcement programs in the planning area.

Education

Education programs can target all age groups and skill levels to effectively encourage the safe use of the transportation system. These programs can be incorporated into activities at schools, churches, task forces, local organizations, and government-sponsored events. Often, education campaigns work in concert with enforcement. Reaching children through education programs is an important way to support lifelong habits of safely using the transportation system. Safe Routes to School programs educate children on the proper use of sidewalks, bicycle facilities, and roadways.

Emergency Services

Ensuring safe access to homes and businesses by emergency personnel is a critical element of safety within the transportation system. When members of the public speak about safety, they often mention the need for ambulances and fire trucks to quickly respond to incidents. The roadway recommendations presented in this plan will have a positive impact on emergency response times. These improvements will encourage an interconnected network of streets that provides route choices and reduced congestion. In addition, improving the signal system and ITS deployment will improve safety.

Security and Transportation Planning

Emphasizing security during the transportation planning process helps identify and implement ways to improve security and mitigate imminent threats. LATS has the advantage of considering security at a regional level, which is a logical first step to ensuring protection at the local level. While general strategies can be formulated at the regional level and LATS can create multimodal recommendations that enhance security, implementation for many strategies will be the responsibility of local organizations. In the LATS region, key security considerations include evacuation routes for coastal areas, the evacuation of affected areas by sensitive facilities, protection of freight corridors, the maintenance of bridges, and the safeguard of transit operations. A selection of these considerations is described in more detail below. Each of the considerations should continue to be a focus of LATS.

Four Categories of Security

Security measures typically fall into one of four categories: prevention, protection, redundancy, and recovery.

- **Prevention** mainly limits access to ensure the safety of the transportation system.
- **Protection** — in coordination with prevention elements — focuses on vulnerable components of the transportation system such as bridges and rail corridors.
- **Redundancy** within the transportation network creates identifiable alternative routes in the event of an incident. Redundancy most often refers to an interconnected street network, though similar methods should be extended to the bicycle and pedestrian network, transit system, and rail corridors.
- **Recovery** refers to both the initial response during an emergency and long-term activities that aid in the return of normal operations.

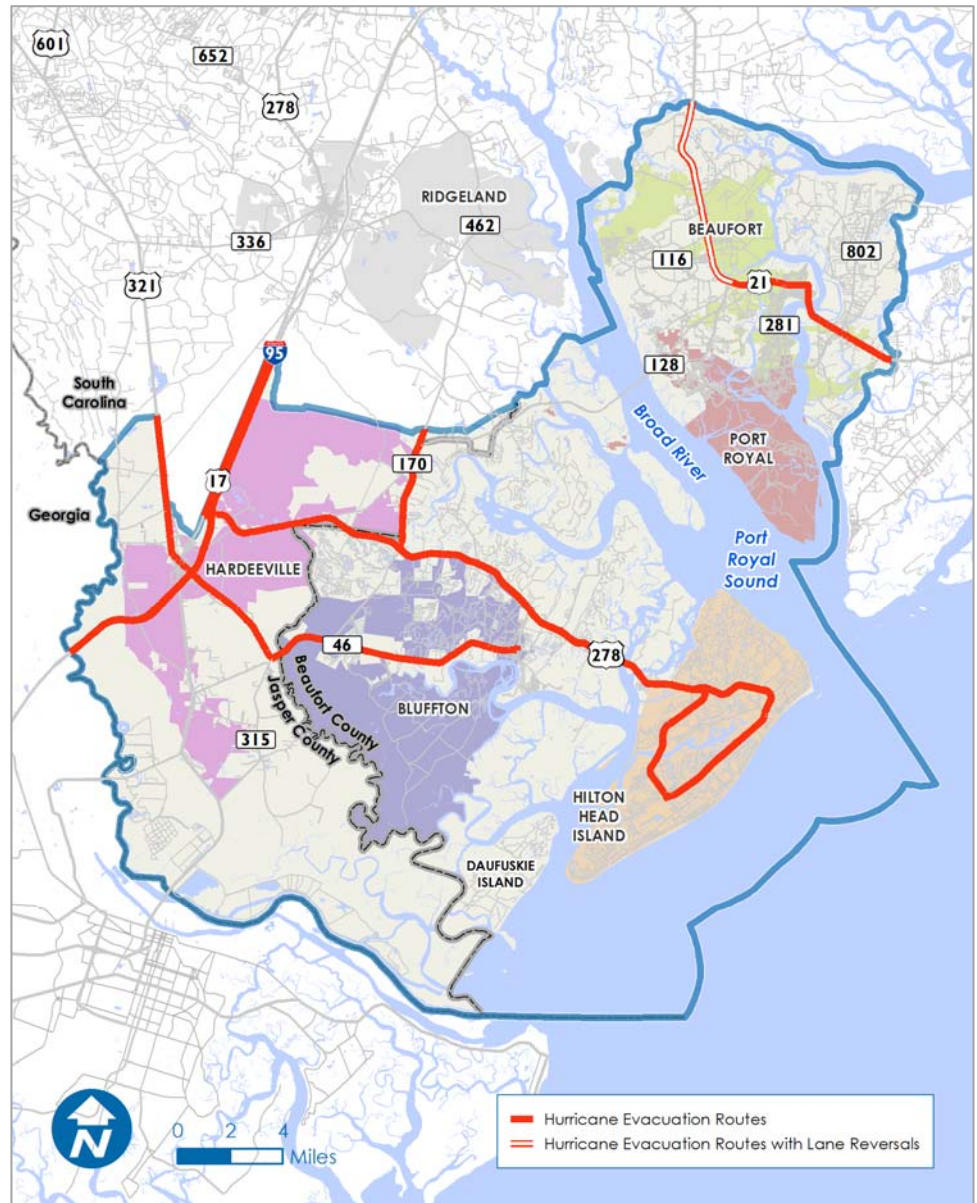
Emergency Response and Fire Protection

Natural or man-made community emergencies can occur at any time. Beaufort County and Jasper County Emergency Management Departments are responsible for overall coordination of county, state, and volunteer agencies before, during, and after an emergency. In addition to the county EMS departments, elements of emergency response and fire protection in the LATs region include municipal and county fire and police departments and the Beaufort County and Jasper County Sheriff Offices.

Evacuation Routes

Natural emergencies such as earthquakes, hurricanes, and tropical storms could potentially affect the LATs region. According to the South Carolina Department of Natural Resources (SCDNR), approximately 70 percent of the earthquakes in South Carolina occur in the Coastal Plain. According to the South Carolina Emergency Management Division (SCEMD), South Carolina is one of the most vulnerable states in the nation to be impacted by an emergency. With 8 of the state's 46 counties on the coastline, the most likely emergency impact is associated with the evacuation of coastal communities prior to a tropical storm or hurricane. The hurricane evacuation routes and the lane reversal system are examples of measures that have already been implemented in the LATs region to mitigate the impacts of natural emergencies.

To facilitate a greater flow of traffic traveling away from the coast and toward I-95 during an evacuation event, SCDOT has established lane reversal plan for US 21 from US 21 Business (Boundary Street) to US 17. US 21 is a four-lane median divided highway. The lane reversal plan shows the utilization of one opposing travel lane to provide three northbound lanes for evacuation.



Freight Considerations

Four policy documents create a framework for SCDOT's freight policies:

Charting a Course to 2040

Corresponding 2040 SCDOT Plans

SCDOT Strategic Plan

Moving Ahead for Progress in the 21st Century Act (MAP-21)

MAP-21 encourages states to develop comprehensive freight plans for the improvement of their freight networks, with the potential for projects to be supported from 80 to 90 percent by federal funding. Freight network improvements are discussed in greater detail in the Chapter 8 of the *2040 LATS LRTP* ("Freight and Aviation").

Furthermore, the Railroads and Highways for National Defense program, with the support of the USDOT, ensures the nation's rail and highway infrastructure can support defense emergencies. The Strategic Rail Corridor Network (STRACNET) consists of 38,800 miles of rail lines important to national defense and provides service to 193 defense installations whose mission requires rail service.

Truck Freight — The South Carolina Truck Weight Law (SC Code: 56-5-4130 and 4160) allows 20,000 lbs. single axle plus 10% tolerance (22,000 lbs.) on all roads except interstate highways. There is no tolerance on Interstates. SC Code: 56-5-4140 explains the statutory limits on the gross weight of a vehicle or combination of vehicles, operated or moved upon any interstate, highway or section of highway. These limits are divided into seven categories depending on a single or combination of vehicles and the number of axles.

Rail Freight — Hazardous materials pose the greatest threat to the security of rail freight networks. Based on County Ordinance 90-29 (adopted in 1990) Beaufort County requires that businesses storing or transporting hazardous materials (by any mode) register them with the County and renew registration annually.

Transit Considerations

The Federal Transit Administration requires Palmetto Breeze to spend a minimum of 1% of all federal dollars received on security. Palmetto Breeze is an important partner in coordinating emergency response plans, particularly assisting with emergency evacuation. To that end, it is recommended Palmetto Breeze (in collaboration with LATS) develop a security and emergency management plan that dovetails with existing municipal, county, and military plans.

Public Perception

Outreach to the LATS region was an integral part of the Safety and Security planning process for the *2040 LATS LRTP*, because local residents, workers, and stakeholders have personal experience with existing safety and security needs. Stakeholder interviews, community workshops, and online outreach efforts were conducted in the spring of 2014 to guide the planning process.

Stakeholder Interviews

Stakeholders made the following comments in relation to safety and security projects:

- The bridge to Hilton Head Island needs to be replaced, in part to support security measures in case of a hurricane evacuation.
- The last full evacuation was in 1999.

Community Workshops

At the interactive community workshops, participants expressed desires for:

- Safer intersections
- Multimodal safety, especially for safer bike connections within the Bluffton pathway system
- Disaster preparation
- Improvements to unsafe, deteriorating roads
- Proposed solutions for the dilemma of climate change and a rise in sea level turning peninsulas into islands

Online Outreach

The online survey included questions about traffic, connectivity, and multimodal travel. The following responses related to roadway infrastructure improvements were recorded:

- When shown the following list of factors, 51% of respondents named safety in the top three factors that should be considered when deciding how to spend funds on transportation projects:

<ul style="list-style-type: none"> • Congestion • Efficiency of System • Safety • Economic Impact • Transportation Choices/Options 	<ul style="list-style-type: none"> • Quality of Life • Convenience • Environmental Concerns • Trip Cost/Affordability • Maintaining the Existing Network
---	---
- 51% of respondents listed feeling unsafe as a reason they don't walk or bike.
- 41% of respondents said improved safety features (e.g. lighting) could increase their use of biking or walking.

Recommendations

Traffic Safety and Crash History

Analysis of crash history along with an examination of existing traffic patterns are an integral part in determining locations where safety improvement countermeasures can benefit both motorists and the community as a whole. Traditionally, crash analysis includes the study of crash frequency and crash type at each location. Crash analysis for the *2040 LATS LRTP* focused on severity with respect to traffic volume while identifying the intersections where mitigation is most critical.

Contributing factors to a location's high crash frequency can include intersection design, access considerations, and traffic congestion. Many of the locations identified with high crash frequencies are also areas exhibiting elevated congestion levels. Since this relationship exists between traffic congestion and crash frequency, proposed roadway projects seeking to reduce traffic congestion should be recognized as having secondary safety benefits. Driveway access in proximity to intersections also can contribute to crash frequency by increasing the unexpected conflict points near the intersection.

To illustrate potential countermeasures that could be applicable throughout the region, the analysis also was used as part of a more detailed analysis for five intersections selected by the Technical Committee. To enable effective implementation of safety countermeasures for these study intersections as well as other high-priority crash locations, the LATS region or member jurisdictions should consider establishing a dedicated annual funding source to make safety improvements or to serve as a local match for federal or state safety funds.

Crash data from 2010 to 2012 and potential locations for spot safety improvement recommendations were obtained from the SCDOT State Traffic Safety Engineering office. The crash data from SCDOT revealed several trends:

- Compared to state averages, a smaller percentage of fatal and serious injury crashes in the LATS region were speed-related or due to impaired driving, and a greater percentage involved roadway departure or heavy trucks.
- The primary route with the most recorded crashes was US 278 in Beaufort County and US 321 in Jasper County. Secondary routes in the region with the most crashes were S-21 (Old Sheldon Church Road), S-40 (Colonial Avenue/Joe Frazier Road), S-54 (Duke Street), and S-77 (Captain Bill Road).
- Of fatal and serious injury crashes at intersections, 57% of crashes occurred at unsignalized intersections, with the remaining 43% occurring at signalized intersections.
- The four intersections in the region with the highest crash severity index were:
 - US 278 & S-474
 - US 17 & SC 170

- SC 46 & S-241
- US 278 & S-29

Spot Safety Locations

The crash analysis was presented at the January 29, 2015 Technical Committee meeting, and five locations were selected for a slightly more detailed review to confirm existing conditions, identify design features, provide insight to potential patterns, and reveal conditions that could be enhanced through geometric changes or enhancements to traffic control. These locations were selected based on feedback from the Technical Committee, also taking into account the SCDOT Roadway Safety Audit of US 278 and crash data from SCDOT (noted in the previous section). As shown on the map, the locations include:

US 278 and S-474
(Simmonsville Rd)

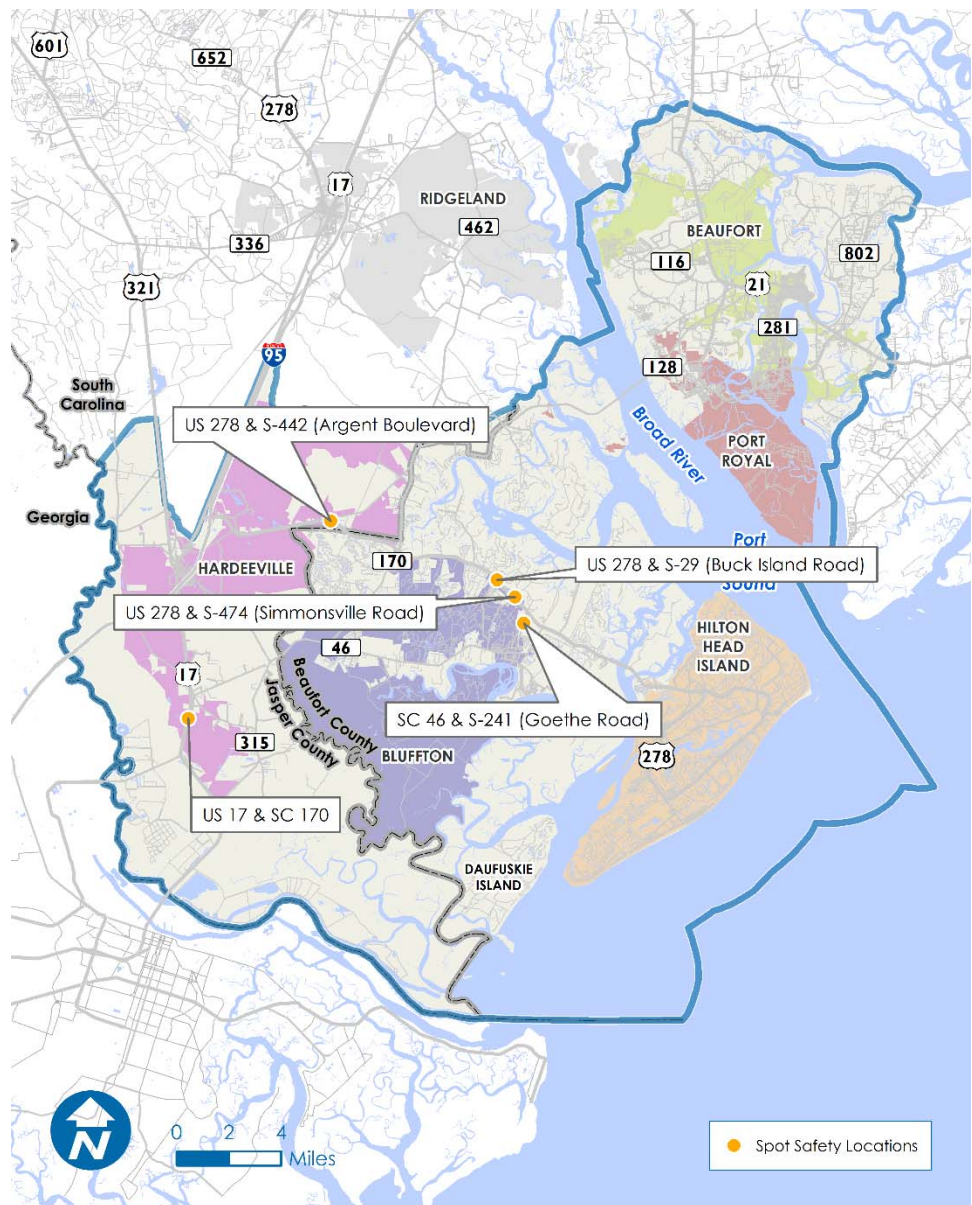
US 17 and SC 170

SC 46 and S-241
(Goethe Rd)

US 278 and S-29
(Buck Island Rd)

US 278 and S-442 (Argent Blvd)

Issues and opportunities for these locations are summarized on the next page. For more detailed information, please see Appendix B.



US 278 and S-474 (Simmons Rd)

Assessment: 162 crashes (2008 to 2012); 70% of crashes between 2010 and 2012 resulted in an injury; most crashes were rear end or angle collisions

Potential Countermeasures: Channelized median; median refuge for pedestrians; yield pavement markings; sidewalks

US 17 and SC 170

Assessment: 34 crashes (2008 to 2012); 3rd highest ranking in region based on crash severity and frequency

Potential Countermeasures: Advance intersection warning signs; offset turn lanes; traffic signal warrant review; turn lanes, yield signs

SC 46 and S-241 (Goethe Rd)

Assessment: 53 crashes (2008 to 2012); nine injury crashes reported; most crashes were rear end collisions

Potential Countermeasures: Traffic signal warrant review; "cross traffic does not stop" sign; turn lane markings; crosswalk and median refuge for pedestrians

US 278 and S-29 (Buck Island Rd)

Assessment: 93 crashes (2008 to 2012); 80% of crashes between 2010 and 2012 resulted in an injury; most crashes were rear end or angle collisions

Potential Countermeasures: Monitor crash data to determine effect of recent intersection modifications; crosswalks and pedestrian signal heads; Median refuge for pedestrians

US 278 and S-442 (Argent Blvd)

Assessment: 63 crashes (2008 to 2012); 70% of crashes between 2010 and 2012 resulted in an injury; most crashes were rear end or angle collisions

Potential Countermeasures: Traffic signal warrant review; turn lanes; advanced intersection warning signs, pavement markings

See Appendix B for more information on each intersection.

Evacuation Routes

With the implementation of many of the widening projects described in the **Chapter 4**, it is possible that the capacities of existing evacuation routes would increase. New location roadway projects also could augment the existing network of evacuation routes, thereby enhancing security in the LATS region. As these improvements are proposed and implemented, further analysis should be conducted to evaluate existing routes and determine whether modifications are needed.

Chapter 6 | Bicycle and Pedestrian

Introduction

MAP-21 Planning Factors

- 1 Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.
- 2 Increase the safety of the transportation system for motorized and non-motorized users.
- 3 Increase the security of the transportation system for motorized and non-motorized users.
- 4 Increase the accessibility and mobility of people and freight.
- 5 Protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns.
- 6 Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.
- 7 Promote efficient system management and operation.
- 8 Emphasize the preservation of the existing transportation system.

Balanced with other travel modes, planning for the enhancement and expansion of the LATS region's cycling and walking network will set the direction for greater mobility and recreational opportunity. The development of the *2040 LATS (Lowcountry Area Transportation Study) Metropolitan Transportation Organization Long Range Transportation Plan (2040 LATS LRTP)* includes a bicycle and pedestrian element that evaluates existing and planned facilities and recommends future facilities to further improve cycling and walking.

Role in the Region

The *2040 LATS LRTP*'s recommended bicycle and pedestrian plan is based on a review of previously adopted plans, dialog with stakeholders, and feedback from the local community. The plan's strategy is to supplement existing facilities to address obstacles to bicycle and pedestrian travel and yield a more robust and connected network. The plan's recommended bicycle and pedestrian facility projects were guided by the LRTP's desire to mitigate congestion, improve livability and create complete streets, enhance multimodal integration, and encourage economic vitality and tourism.

Relevance to the Long Range Transportation Plan

Cycling and walking are unique because they are not only modes of transportation for travelers and commuters, but they can be forms of recreation and health improvement. Travelers who cannot or choose not to own a motor vehicle benefit from a transportation network that accommodates non-motorized travel between destinations. The Lowcountry region's existing bicycle and pedestrian network is already fairly extensive in some areas, while new developments are bolstering the network with their own sidewalks and multi-use paths.

Planning Considerations

MAP-21 Planning Factors

When considering the eight planning factors set forth in the MAP-21 legislation, four of the factors display a close linkage with the regional bicycle and pedestrian network. This emphasis on multimodal connections at the federal level echoes the needs and priorities that are being expressed at a local level in this region.

The Five Es of Bicycle and Pedestrian Planning

There are five components of bicycle and pedestrian planning. The thoughtful consideration of each component, balanced with the other components, can lead to a successful bicycle and pedestrian plan.

Engineering

The engineering component refers to the planning and designing of on-road and off-road facilities. To create a well-integrated bike and pedestrian network, planners and engineers must establish and properly implement design and route selection.

Education

The education component refers to the resources available for all users of the network, including cyclists, pedestrians, and motorists. All road users, new and experienced, should be provided with resources that equip them to travel safely and encourage sharing of the roadway.

Encouragement

The encouragement component refers to various methods of promoting bicycling and walking. Cyclist and pedestrians need access to programs resulting from planning efforts focuses on specific facilities suitable for cyclists or pedestrians. These planning efforts can include creating desirable and attractive destination areas.

Enforcement

The enforcement component refers to intentional actions that protect the safety of all travelers. Targeted enforcement can encourage cyclists and motorists to more safety use and share multimodal facilities.

Evaluation/Planning

The evaluation and planning component refers to the periodic review of existing and planned facilities. The most accommodating communities for cyclists and pedestrians have systems in place to assess existing programs and outline steps for future expansion. The facilities recommended as part of the 2040 LATS LRTP should be supplemented with coordinated programs and policies that instruct and encourage cyclists and pedestrians in making the best use of the non-motorized transportation network.

Types of Users

An understanding of the types of non-motorized travelers is paramount to the development of a plan that recommends the appropriate facilities for the intended or expected users of the facility. Two pieces of information that define the type of user are trip purpose, which pertains to both cyclists and pedestrians, and skill level, uniquely relevant to bicycle facilities. The impetuses of those traveling by bike or foot paired with the varying skill and comfort levels of cyclists require a flexible and responsive approach to bicycle and pedestrian planning. Cycling and walking often falls into two distinct types of travel:

1. **Utilitarian, non-discretionary travel.** In some cases, persons with disabilities and many elderly are not able to operate a motor vehicle. In addition, some households simply cannot afford an automobile. According to the 2012 American Community Survey 5-Year Estimates, approximately 5% of all households in the region do not have a vehicle available. For those unable to drive and persons living in households with no vehicles, the only option for daily necessary trips may be transit, bicycling, and walking.
2. **Recreational, discretionary travel.** As mentioned above, walking and bicycling are excellent methods of exercise, helping residents to establish a healthy lifestyle while enjoying the livability of their communities. Cycling and walking for fun is increasing in popularity as Americans continue to realize the benefits of these activities.

Both types of travelers would benefit from a complete network of bicycle and pedestrian facilities, as well as programs that educate and encourage current and future users.

Skill Level

Cyclists can further be grouped by their level of skill and comfort:

1. Advanced cyclists are typically the most experienced and can ride on roadway facilities including striped bike lanes, wide shoulders, and sharrows. Advanced cyclists can navigate arterials characterized by higher traffic volumes and higher speeds and represent 1 out of every 5 cyclists and account for 80% of annual bicycle miles traveled.
2. Intermediate and basic adult cyclists have respectively less experience on the roadway and prefer multi-use paths or exclusive bike facilities such as bicycle lanes. They generally feel uncomfortable around fast-moving and heavy traffic.
3. Child cyclists have little to no experience on the road and generally keep to neighborhood streets and greenways. On busier streets, child cyclists will likely ride on the sidewalks.

Types of Facilities

Local agencies can implement several types of bicycle, pedestrian, and shared non-motorized travelways, but planners should give careful consideration to the intended types and skill levels of the users who will use the facility. Coupled with balancing several variables including construction cost, impact to traffic flow, and safety, the *2040 LATS LRTP* provides a bicycle and pedestrian plan that is well-integrated into the region's overall transportation network.

Transportation networks with sidewalks and multi-use paths along roadways provide utilitarian connectivity while multi-use paths in open spaces (i.e greenways) mostly serve recreationalists. Bicycle facilities are more varied than pedestrian facilities simply because many of them share or are directly adjacent to the roadway.

- Striped bike lane
 - Exclusive-use area adjacent to outermost travel lane
 - 4' to 5' typical width
 - \$2,000 estimated cost per mile for striping only
 - \$800,000 estimated cost per mile for new construction
- Wide outside lane
 - Extra width beyond typical travel lane width
 - 14' typical width for outside lane
 - Best used on 4-lane roadways with speed limits of 35 mph or lower
 - Cost typically incurred through roadway widening projects
- Shared lane markings (sharrows)
 - Pavement markings on travel lanes to indicated shared space for both bicycles and motor vehicles
 - Best on low-speed space-constrained roadways
 - 100' to 250' typical spacing
 - \$12,500 estimated cost per mile (\$175 per marking)
- Paved shoulder
 - Extra width beyond typical travel lane with separating stripe
 - Extends roadway service life
 - 4-5' typical width
 - \$300,000 estimated cost per mile
- Multi-use path
 - Adjacent to and set back from roadway (sidepath) or located in open space (greenway)
 - Shared with cyclists, pedestrians, and other permitted non-motorized users
 - 10' to 14' typical width
 - \$500,000 estimated cost per mile

The table below displays each bicycle facility by the skill level of its intended users.

	Basic	Intermediate	Advanced
Striped Bike Lane			
Wide Outside Lane			
Shared Lane Markings			
Paved Shoulder			
Multi-Use Path			

Public Perception

A series of public workshops were held in the spring of 2014 to obtain feedback from residents, business owners, and local officials to inform the development of the *2040 LATS LRTP*. While the workshops focused on all travel modes, participants identified a number of issues with and suggestions for improving the region's existing bicycle and pedestrian network. Some of the comments included:

- Construct multi-use paths and bike lanes.
- Install a greenway on the south side of SC 46 between SC 170 and Old Town Bluffton.
- Adopt a complete streets policy.
- Connect the pathways in Bluffton.
- Provide safe bicycle connections to connect Bluffton's and Hilton Head Island's pathway systems.
- Consider the differences between bicycle facilities and pedestrian facilities.
- Implement bike and walk to school programs.
- Improve public image of biking and walking.
- Establish bicycle and pedestrian connections.
- Create a bicycle/pedestrian advisory committee.
- Develop and adopt more bicycle plans.
- Reroute the East Coast Greenway through the Lowcountry region.
- Enhance greenway network to connect parks, trails, and public space.

Recommendations

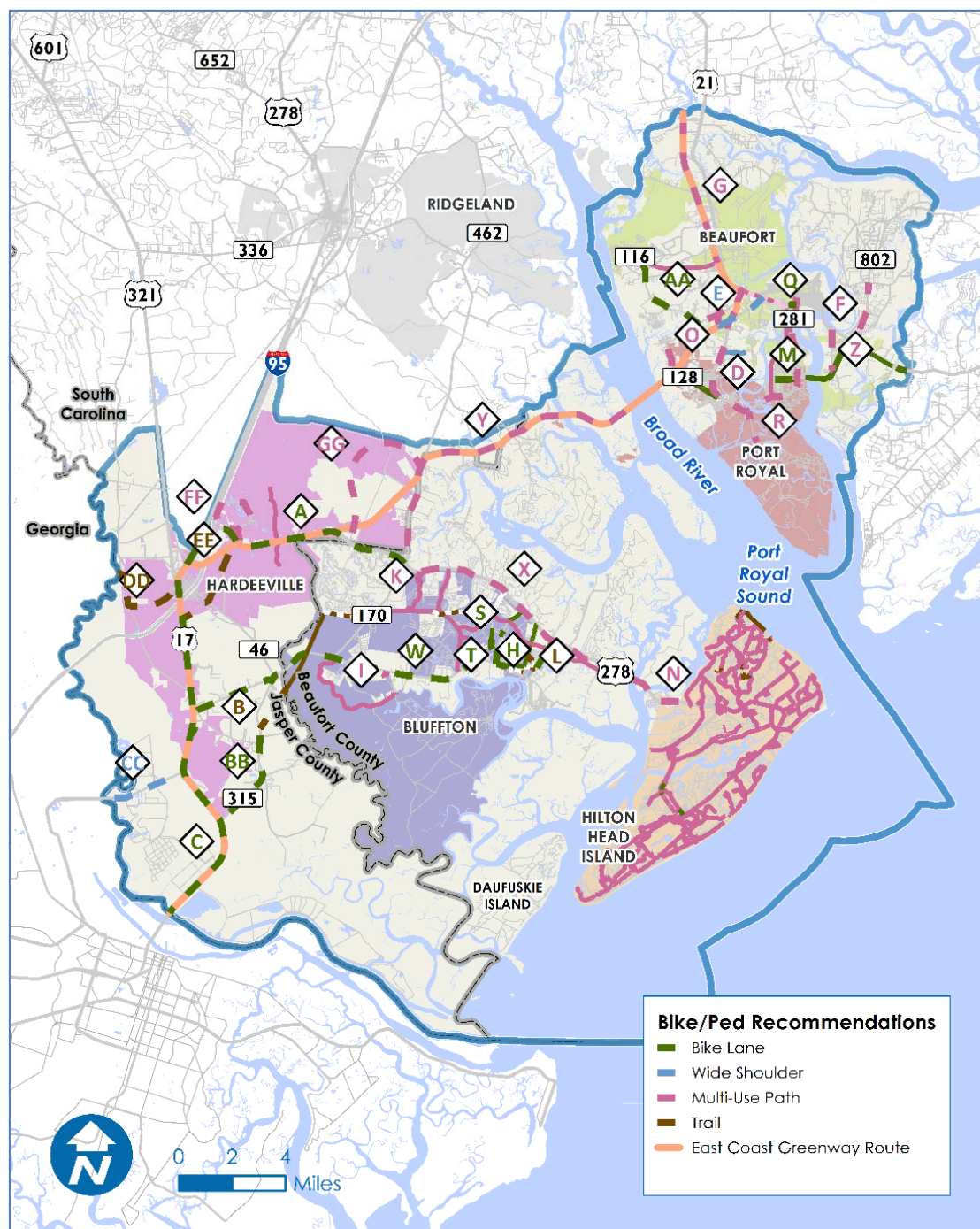
A robust non-motorized network can benefit current and potential cyclists and pedestrians of all ages and socioeconomic backgrounds. Biking and walking are generally more convenient and efficient in the urban areas of the LATS region, and the LRTP's recommendations aim to both enhance the existing network while connecting the urbanized areas. Regardless of trip purpose, cycling and walking can provide independence, flexibility, and freedom of choice to the region's travelers.

Connections to Destinations

Establishing additional connections to destinations and filling gaps in the sidewalk network within the city limits are key considerations for the *2040 LATS LRTP*. The plan's bicycle and pedestrian improvements will enhance or provide access to key destination points. The recommendations are intended to make cycling and walking to activity centers safer and more comfortable. The recommended facilities will provide additional connections to a variety of destinations:

- Employment centers
- Schools, parks, and recreation centers
- MCAS Beaufort, Parris Island, and U.S. Naval Hospital Beaufort
- Public facilities

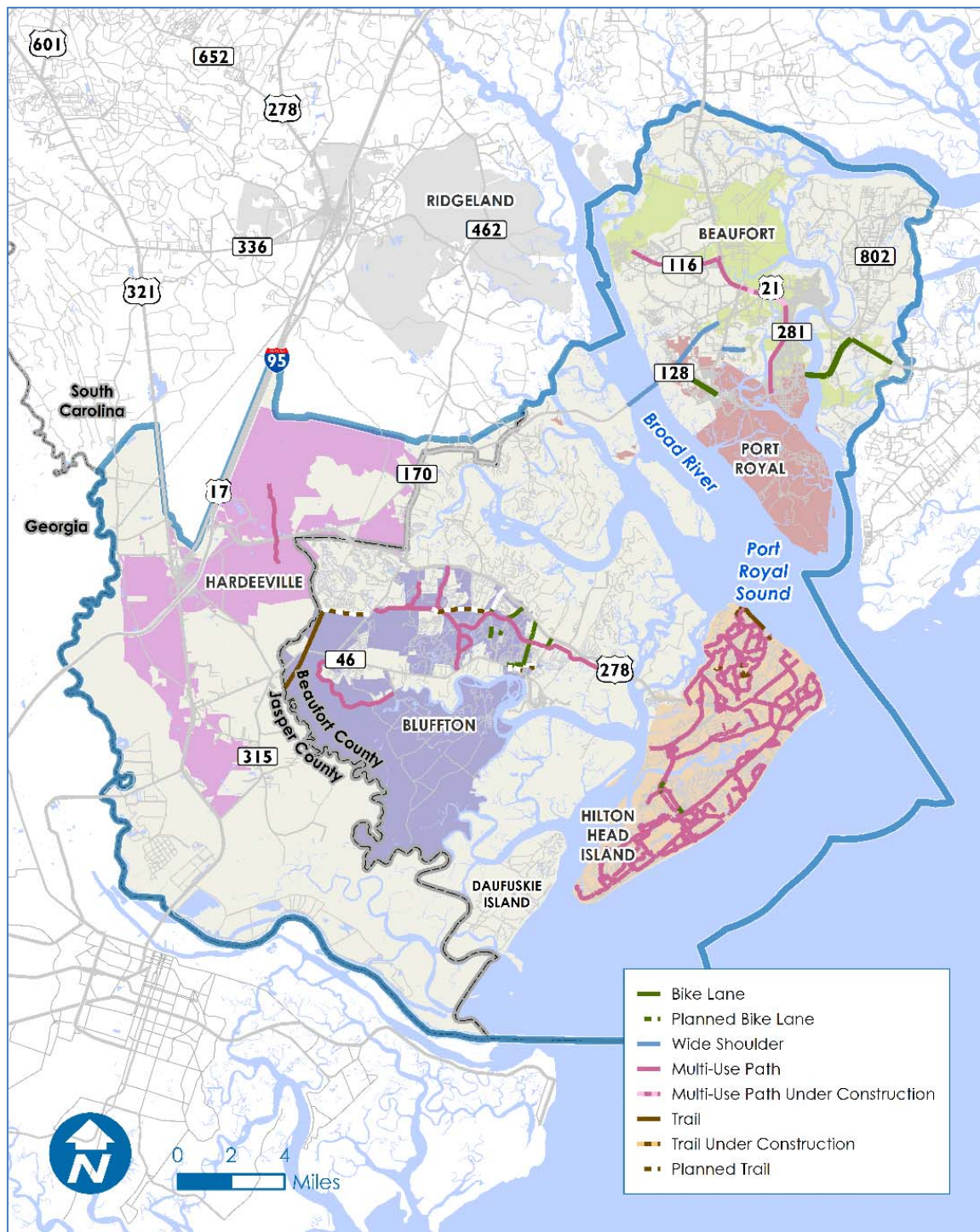
As roadway congestion continues to increase, it is important to identify alternative ways for people to reach their destinations. Because roads cannot be expanded infinitely, improving and enhancing bikeways, sidewalks, and transit service are important for the future of the region's mobility. A complete network of bicycle and pedestrian facilities in concert with programs that educate and encourage current and future users is necessary for bicycling and walking to reach its full potential as transportation alternatives in the LATS area.



The bicycle/pedestrian recommendations are shown in the map. The accompanying table that describes each project's extents and facility type.

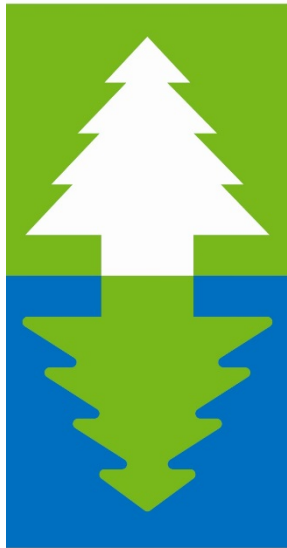
Project ID	Location	Type	Length
A	US 278 from US 17 to SC 170	Bike Lanes	8.2
B	Extension along utility easement	Trail	1.8
C	US 17 from Georgia line to US 278	Bike Lanes	16.0
D	US 21 (Parris Island Gateway) / SC 281 (Ribaut Rd) from US 21 Bus (Boundary St west) to US 21 Bus (Boundary St east)	Multi-Use Path	11.7
E	SC 170 from W K Alston Dr to Salem Rd	Wide Shoulders	2.0
F	SC 802 from US 21 to Brickyard Point Rd / Holly Hall Rd	Multi-Use Path	2.3
G	Along railroad ROW from SC 116 to Seabrook Rd	Multi-Use Path	5.4
H	Burnt Church Rd from SC 46 to Bluffton Pkwy	Bike Lanes	0.8
I	Old Palmetto Bluff Rd from Palmetto Bluff Rd to SC 46	Multi-Use Path	1.0
J	Buck Island Rd from Tower Rd to Bluffton Pkwy	Bike Lanes	0.5
K	Hampton Pkwy	Multi-Use Path	0.5
L	Hawkes Rd from Bruin Rd to SC 46	Trail	0.5
M	SR S-7-233 from Battery Creek Rd to US 21 bridge	Bike Lanes	1.8
N	US 278 from Fording Island Rd Ext to Squire Pope Rd	Multi-Use Path	3.3
O	Broad River Blvd from SC 170 to US 21	Multi-Use Path	4.2
P	W K Alston Dr from SC 170 to Broad River Blvd	Multi-Use Path	0.4
Q	North St from Linton Ln to SC 281	Bike Lanes	0.5
R	Malecon Dr from traffic circle to US 21	Multi-Use Path	1.2
S	Simmons ville Rd from north of New Mustang Dr to Bluffton Pkwy	Bike Lanes	0.5
T	Simmons ville Rd from SC 46 to Windy Lake Ct	Bike Lanes	1.0
U	Buck Island Rd from Simmons ville Rd to Fernbank Ave	Bike Lanes	0.6
V	Several small MUP extensions	Multi-Use Path	3.0
W	SC 170 / SC 46 from US 17 to Stock Farm Rd	Bike Lanes	13.6
X	US 278 from Hampton Pkwy to Fording Island Rd Ext	Multi-Use Path	8.6
Y	SC 170 from US 278 to SC 128	Multi-Use Path	13.0
Z	Meridian Rd from US 21 to Sea Island Pkwy	Multi-Use Path	1.6
AA	Joe Frazier Rd from SC 116 to Broad River Blvd	Bike Lanes	3.5
BB	SC 315 from US 17 to north of Cook Landing Rd	Bike Lanes	4.1
CC	SC 170 from Georgia line to US 17	Wide Shoulders	3.2
DD	From US 321 to Purrysburg Rd	Trail	3.4
EE	From US 17 to US 278 via utility easement	Trail	3.5
FF	Along I-95 Frontage Rd around Sergeant Jasper Park	Multi-Use Path	5.0
GG	From US 278 to SC 170	Multi-Use Path	6.2

The recommended bicycle and pedestrian network for the *2040 LATS LRTP* includes a coordinated series of bike lanes, multi-use paths, trails, and wide shoulders. Connectivity was an important consideration as recommendations were developed. The planning process also emphasized vetting previous plans (e.g. bicycle and pedestrian plans, corridor studies, and small area plans) with the updated roadway recommendations. This emphasis was necessary given the limited funds available for standalone bicycle and pedestrian projects. The facility recommendations shown in the map on page 6-8 are coordinated with the roadway recommendations provided in Chapter 4.



This map shows bicycle and pedestrian projects that are currently existing, under construction, or planned.

East Coast



Greenway®

East Coast Greenway

The East Coast Greenway is a long-distance, continuous, traffic-free route that aims to connect existing and planned shared-use paths from Maine to Florida. The East Coast Greenway, planned to lie largely within the public right-of-way, is still in development and is intended to follow existing roadways where greenways have not yet been developed. The East Coast Greenway distinguishes between Permanent and Interim Routes with the following definitions:

- **Permanent Route.** The permanent route is that portion of the corridor that now or in the future will be on off-road trail or otherwise separated from motor traffic (i.e. cycletrack or permanent barrier protecting bicyclists and pedestrians). Any on-road sections are viewed as interim, and the goal is to continue working until a means to move them off-road can be found. The goal is as close to a 100% off-road route as physically possible, with bike lanes, sharrows, cycle tracks, and sidewalks in the remaining sections. Still, because the aim of the East Coast Greenway is to serve people of all ages and abilities, efforts to find off-road solutions, even in challenging locations, will be maintained.
- **Interim Route and Current Travel Route.** To provide a way for experienced cyclists to travel the East Coast Greenway today, on-road (interim) routing to link completed trails has been carefully chosen and field-checked. This interim routing will be abandoned incrementally as off-road trails are established in line with the vision of an entirely off-road and traffic-free ECG.

Currently, the main East Coast Greenway route in South Carolina connects from Savannah north to Ridgeland, east to Charleston, and runs along the coast through Georgetown and Myrtle Beach before crossing into North Carolina. To promote better connections between state bike routes and the East Coast Greenway, the *2040 LATS L RTP* recommends the rerouting of the East Coast Greenway to travel from Savannah north to Hardeeville along US 17, along SC 170 to Beaufort, and then north along US 21 before reconnecting with the current route alignment via Trask Parkway. This preferred alignment is shown in the map on page 6-6. Other considerations for the East Coast Greenway include:

- Explore options for improved crossings between Georgia and South Carolina.
- Consider future improvements to US 17 such as a boardwalk on one side.
- Evaluate options for the US 17/I-95 crossing south of Hardeeville.
- Consider improvements (particularly southbound) at the intersection of John Smith Road and US 278.
- Use existing or planned sidepaths in Bluffton where possible.
- Consider routing along the planned sidepath on SC 170.
- Evaluate whether it's feasible to use additional sections of the Spanish Moss trail toward Port Royal.
- Continue to re-evaluate route as the trail network expands.

Policies and Programs

Several previously adopted plans have laid the foundation for establishing policies and programs that aim to improve bicycle and pedestrian travel in the LATS region. These plans are documented here, along with their corresponding policy and program recommendations. LATS should partner with SCDOT and member jurisdictions to help advance and implement these measures.

Lowcountry Region Transportation Plan (2007)

- Power line easements and abandoned railway corridors should be investigated for potential multi-use pathway locations.
- An inventory of bicycle and pedestrian facilities which includes existing, funded, and planned facilities should be maintained.
- Work with counties and municipalities to encourage developers to include bicycle and pedestrian facilities in new developments.
- Educate developers about the value of bicycle and pedestrian facilities.
- Educational efforts and community involvement should be encouraged and expanded upon for education and instruction on safe pedestrian and cycling practice.
- Brochures showing the relationship of multi-use pathways, bike lanes and pedestrian and bicycle facilities to shopping areas and other areas of interest should be distributed to the general public through bicycle rental shops, hotels and other appropriate places.
- Educate the public about multi-use pathways via the Internet.
- Safety education materials should be provided to students in K-12 and targeted population groups on appropriate pedestrian and bicycle actions and practices.
- Programs should be instituted that educate drivers and cyclists of the rules of the road.

Beaufort County Comprehensive Plan (2010)

- Beaufort County should work with the School District to promote making walking and bicycling a safe option for children traveling to school.
- Beaufort County should partner with utility providers to identify utility corridors that have the potential to be used for pathways.

Jasper County Comprehensive Plan (2013)

- Bicycle and pedestrian connectivity between future residential neighborhoods and nearby commercial areas, parks, and schools should be required, encouraged, and incentivized and built by private developers.
- Bicycle and pedestrian facilities should be incentivized as part of redevelopment and infill projects to provide a continuous sidewalk network through denser urban areas.

- The County should continue to coordinate with the Jasper County School District (including Safe Routes to School program), LRTA, major employers, SCDOT, and LCOG to plan a multi-modal and coordinated approach to non-motorized transportation planning.
- Jasper County should conduct a formal long term bicycle and pedestrian planning process.

Vision Beaufort Comprehensive Plan (2009)

- Establish a retrofit connectivity program. Beaufort should consider a funded program to identify, prioritize, and construct bicycle and pedestrian connections between existing neighborhoods and other developed areas.
- Initiate bicycling education and encouragement efforts. The City, in cooperation with the County, LATS, SCDOT, and local advocacy groups, can promote walking and biking through the following initiatives:
 - City-wide events to promote walking and bicycling
 - Multi-modal transportation maps
 - Bicycle education courses
 - Safe Routes to Schools events

Beaufort Civic Master Plan (2014)

- Dedicate space within the public right-of-way for the exclusive use of pedestrians and bicyclists.
- Consider the installation of midblock crossings at appropriate locations to support the bicycle and pedestrian network.
- Create a more connected transportation network through a series of strategic connections.
- Promote the concept of complete streets in Beaufort streetscape improvements.
- Create more walkable neighborhoods through a series of individualized neighborhood strategies.
- Support the continued growth of educational and civic institutions by the identification of efficient and strategic bicycle and pedestrian facilities.

Bluffton Comprehensive Plan (2007)

- Partner with utility companies to develop bicycle and pedestrian facilities along right-of-ways.
- Require all new developments accommodate pedestrians within their site.
- Coordinate with public and private groups, including the Bluffton Police Department and area advocacy groups, to promote the education and awareness of personal safety while using bicycle and pedestrian facilities.
- Investigate safe routes to schools and funding.

Hardeeville Comprehensive Plan (2010)

- Educate developers during pre-application conferences of future multi-use pathway locations in relation to their development and encourage developers to include pathways or sidewalks along all roads within their development and connections to the existing public system.
- Produce brochures showing relationship of multi-use pathways to shopping areas and other areas of interest, and distribute to the general public through bicycle rental shops, hotels, and other appropriate places.
- Educate the public about multi-use pathways via the world-wide web, newspaper and other media.

Town of Hilton Head Island Comprehensive Plan (2012)

- Multi-Use Pathways Goals
 - The goal is to expand the pathway network to provide pedestrians, bicyclists, and other users of non-motorized transit with a safe and efficient infrastructure to connect residential and tourist areas to schools, parks, commercial areas, and potential off-Island connections.
 - The goal is to complement public transit operations such as those of the Palmetto Breeze (LRTA), by connecting transit stops with employment destinations and tourist destinations.
- Multi-Use Pathways Strategies
 - Investigate the use of power line easements for potential multi-use pathway locations. iv. Consider installation of bicycle loop detectors to count bicycle trips at selected locations on the Island's multi-use pathways to determine needs.
 - Encourage bicycle parking facilities, especially on Town-owned properties.
 - Educate developers during pre-application conferences of future multi-use pathway locations in relation to their development and encourage developers to include pathways or sidewalks along all roads within their development and connections to the existing public system.
 - Coordinate with Beaufort County, Bluffton, and the Lowcountry Council of Governments to connect Island multi-use pathways to pathway systems on the mainland.
 - Inventory areas for safety on an annual basis for problems such as low-hanging vegetation, inadequate signage, lines of sight, and irregular asphalt.
 - Schedule safety maintenance of pathways at least annually.
 - Coordinate with SC DOT and other agencies as well as private road owners to mark major intersection crossings with colored and

textured pavement or painted crosswalks, and install pedestrian activated crosswalks where needed.

- Produce brochures showing relationship of multi-use pathways to shopping areas and other areas of interest, and distribute to the general public through bicycle rental shops, hotels, and other appropriate places.
- Educate the public about multi-use pathways via the world-wide web, newspaper and other media.
- Maintain and update the Town's multi-use pathway kiosk signs along the pathways.

Chapter 7 | Transit

Introduction

Palmetto Breeze, formally known as Lowcountry Regional Transportation Authority (LRTA), has been serving residents, employees, and visitors in Beaufort and Jasper Counties, as well as Allendale, Colleton, and Hampton Counties with transit service for nearly four decades. The various transit options — seven commuter fixed routes, four demand-response routes, and five coordinated routes — offered by Palmetto Breeze serve riders across the Lowcountry region. Palmetto Breeze provides administrative services for the ferry, operated by J & W Corporation of Greenwood, Inc., from Hilton Head Island to Daufuskie Island, available to Daufuskie Island landowners and residents. Tourists and visitors may also ride the ferry, but must pay a higher fare. In 2014, the South Carolina Department of Transportation (SCDOT) recognized Palmetto Breeze as the Human Services Transit Provider of the Year and the Most Improved Transit System.

The Transit element of the *2040 Lowcountry Area Transportation Study Long Range Transportation Plan (2040 LATS LRTP)* documents existing public transportation and paratransit service in the LATS area, evaluates recent and on-going transit planning efforts, and recommends strategies to enhance access and mobility for residents throughout the area.



Role in the Region

The *2040 LATS LRTP* transit plan builds upon previous planning efforts and evaluates opportunities to create a coordinated system that serves existing and potential needs of the area while satisfying Federal and State eligibility requirements for financial assistance. The plan's recommended improvements for Palmetto Breeze's existing service and programs were guided by the LRTP's desire to mitigate congestion, improve livability and complete streets, enhance multimodal integration, and emphasize environmental stewardship.

Relevance to the Long Range Transportation Plan

Referenced in Chapter 2, the *2040 LATS LRTP* established several Guiding Principles to guide the development of recommendations for LATS. Recommendations to improve and expand transit service in the LATS region are based on previously adopted plans, public feedback, and an assessment of existing service. Transit recommendations in the *2040 LATS LRTP* were developed within the context of the following Guiding Principles:

- Congestion Mitigation – Improve transit opportunities
- Livability and Complete Streets – Serve multimodal needs
- Multimodal Integration – Create coordinated transit improvements and strategies for system maintenance
- Environmental Stewardship – Enhance access and mobility for disadvantaged populations

Planning Considerations

MAP-21 requires MPOs to consider all modes of transportation in the analysis of region-wide mobility and the development of recommended plans, programs, and policies. The following considerations are critical for developing a transit system that appropriately meets the needs of the region's transit users.

MAP-21 Planning Factors

MAP-21 Planning Factors

- 1) Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.
- 2) Increase the safety of the transportation system for motorized and non-motorized users.
- 3) Increase the security of the transportation system for motorized and non-motorized users.
- 4) Increase the accessibility and mobility of people and freight.
- 5) Protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns.
- 6) Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.
- 7) Promote efficient system management and operation.
- 8) Emphasize the preservation of the existing transportation system.

Choice vs. Captive Riders

Transit serves riders along a spectrum ranging from captive riders to choice riders.

- **Captive riders** do not have access to or are unable to use a personal vehicle. They are dependent on the transit system to travel. Captive riders include persons too young to drive, the elderly, persons with disabilities, and those without the financial means to own and operate a personal vehicle.
- **Choice riders** otherwise have access to a personal vehicle but instead choose to use transit. These riders include persons who decide not to own a personal automobile and those who decide to use transit for work, social, medical, or personal trips. Reasons choice riders use transit include saving money, convenience, comfort, or environmental principles.

Population in the LATS region is becoming increasingly dispersed, making convenient transit service more complex and expensive to operate. To encourage transit use and decrease dependence on the automobile, a safe, comfortable customer delivery system with attractive and convenient amenities must be developed around bus stops. The customer delivery system requires a network of sidewalks, safe street crossings, and bicycle facilities. The efficiency of transit also depends on an interconnected street network suitable for bus traffic and convenient ways for riders to shift between public transportation modes. For these reasons, transit cannot be considered in isolation, and the strategies presented in this chapter support improvements to the larger transportation system.

Fixed Route and Demand Response

Palmetto Breeze operates seven commuter fixed routes which all share Hilton Head Island as their southern terminus. Two of the commuter fixed routes serve Beaufort County via the City of Beaufort, while the other five connect to Jasper County. The commuter fixed routes utilize 40-foot coach buses and one-way fares range from \$2.50 to \$4.00.

Demand response transit, also known as Dial a Ride, permits riders to schedule rides in advance. This enables the transit agency to serve riders in more rural areas while balancing resources. Three of the four demand response routes connect to the City of Beaufort, while the fourth connects Bluffton to Hilton Head Island. One-way fares are \$3.75.

Palmetto Breeze operates three coordinated routes in the LATS region: one that serves Hardeeville, one that connect Bluffton to Hilton Head Island, and one that connects Hardeeville north to Ridgeland. The coordinated routes operate similar to the demand response service; riders must call ahead of time to schedule a ride. However, the transit services are provided by offering vacant seats on services that are operating in the area on the days and times and at the locations of those services on a space-available basis. The base fare is \$5.00 per one-way trip and \$3.00 for each additional 10-mile increment. A map showing Palmetto Breeze's service area is shown below.



Transit and Urban Form

Travelers are more likely to use transit when service is convenient, dependable, and easy to use. While this level of service requires a complete network of roads, sidewalks, and bikeways, it also demands connections to the places travelers need and want to go. Where possible, transit should occur in areas with transit-supportive urban form. Development types that maximize potential transit ridership include transit-oriented development, transit-ready development, and single-use transit destinations.

Transit-Oriented Development

Transit-oriented developments (TODs) provide a mixture of residential and commercial uses focused around a transit station or bus stop. The transit stop is surrounded by relatively high density development that spreads out as you move away from the center. The scale of a TOD generally is limited to ¼- to ½-mile in diameter to establish the walkability of the neighborhood. The design of such places maximizes access to transit and supports walking and biking between destinations.

Transit-Ready Development

In locations that lack existing transit facilities or lack the demand to support a TOD, regulations and guidelines that support transit-ready development should be enforced. Transit-ready development describes the coordinated design of new neighborhoods and activity centers that supports future transit expansion. Like TODs, transit-ready developments include a mixture of land uses, pedestrian-friendly design, appropriate locations and/or routes for transit, an interconnected network of internal streets, and appropriate densities supportive of future transit use.

Single-Use Transit Destinations

While transit-oriented and transit-ready developments represent ideal urban form for transit destinations, many existing single-use locations in the LATS area are viable long-term facilities. The military bases and Hilton Head Island are a few examples of vital destinations for many residents of the LATS region. These types of locations represent places where access to public transportation continues to be an important priority.

Previous Planning Efforts

The Lowcountry COG has been working with Palmetto Breeze for many years in the planning and coordinating of transit services for the region. With the formation of the LATS MPO, this responsibility has expanded. The LATS MPO will play a role not only in transit planning, but also in the distribution of federal and state funding to the transit agency. Many previous planning efforts have discussed the needs and priorities of future transit service within the LATS region. These plans should continue to serve as a guide as future transit improvements are considered.

- Lowcountry Long-Range Regional Transportation Plan
- Lowcountry Coordinated Transportation Expansion Plan
- Palmetto Breeze Regional Public Transportation Business Plan: US 278 Bus System
- Palmetto Breeze Transportation Planning Services
- Northern Beaufort County Regional Plan
- Southern Beaufort County Regional Plan
- Jasper County Comprehensive Plan
- Town of Bluffton Comprehensive Plan
- Town of Port Royal Comprehensive Plan
- Vision Beaufort: 2009 Comprehensive Plan

Public Perception

Two public workshops were held in March and April of 2014 to solicit feedback from residents, business owners, and local officials to guide the development of the *2040 LATS LRTP*. Participants in attendance at the public workshops were asked to engage in exercises to verbalize their perception of transportation in the LATS area. Some of the transit-related comments from these exercises include:

- Prioritize public transportation improvements.
- Consider less conventional travel modes, i.e. ferry and light rail.
- Utilize waterways with public transit.
- Improve transit mobility.
- Use more transit service to reduce traffic congestion.
- Change public perception of transit to encourage ridership.
- Make public transportation affordable.
- Enhance connectivity of transit system.
- Increase the frequency of service between Beaufort and Bluffton.
- Include bus lanes on major and secondary roads.
- Expand public transportation to save energy.

Recommendations

Several recommendations to improve transit service and facilities and to implement policy changes were included in the previously adopted plans listed earlier. A consolidation of the recommendations is provided below, categorized by recommendation type.

Policy and Program Recommendations

- Provide public transit to support employment, education, medical care, human services
- Support economic development and community activity
- Provide transit services for those who don't have choices and those who do
- Develop services for specific market segments
- Change image from "last resort" to "first choice"
- Align itself with its communities' needs and leadership

Route and Facility Recommendations

- Schedule major arteries service
- Provide local routes on Hilton from motels to beaches and shopping centers and outlet stores
- All day service in Beaufort
- Park & ride in Beaufort and Bluffton and on Hilton Head
- Circulator on Hilton Head
- Paratransit service
- Beach trolley on Hilton Head
- Commuter and family service between Laurel Bay and the three military facilities
- Routes for and with hospitals to help them meet their Medicaid goals of eliminating re-admissions
- Savannah and Charleston routes

Given the region's new designation as a Small Urban Area and the continued maturation of Palmetto Breeze, a transit system development plan should be completed prior to updating the *2040 LATS LRTP*.

Chapter 8 | Freight and Aviation

Introduction

The movement of goods and people through and between communities plays an important role in the LATS region's economic vitality. Although freight movement often is unnoticed by the public, the ability to efficiently move goods and commodities directly impacts regional, national and international economic competitiveness. It is essential that freight and aviation continues to be safe, reliable, and cost-effective for the LATS region.

The Freight and Aviation Element of the *2040 Lowcountry Area Transportation Study (LATS) Metropolitan Planning Organization's Long Range Transportation Plan (2040 LATS LRTP)* embodies how local decisions and public feedback can enhance the safe and efficient movement of goods and people. The Freight and Aviation Element incorporates key feedback received through the plan's community engagement channels, particularly stakeholder interviews. The underlying need to provide connections to industrial assets and enhanced access to interstate highways are consistent themes in this element. The approach to freight and aviation also blends previous efforts and recommendations with other elements, notably as incidental projects tied to recommendations in the roadway element.

Role in the Region

The *2040 LATS LRTP* identifies strategies that effectively and efficiently allocate resources to respond to existing and projected transportation needs. Freight and aviation are important contributors to the economy of the LATS area, and decisions made locally affect the region and beyond. As the region's needs grow while financial and environmental constraints remain, the transportation system requires a balanced approach to moving people and goods.

Relevance to the Long Range Transportation Plan

No other element of the *2040 LATS LRTP* is more closely tied to economic development than freight and aviation. Historically, rail and highway corridors have provided a spine upon which industrial growth could occur in the Lowcountry area. Industrial growth, in turn, has spawned population growth and commercial expansion. For this reason, obstacles facing the freight community can slow population growth and economic development.

Often, these obstacles are related to other segments of the transportation network. Successful planning efforts for freight and aviation incorporate the specific interests of other modes, especially roadway recommendations that involve capacity improvements or access management strategies. The planning context for the Freight and Aviation Element builds upon the *2040 LATS LRTP* goals, MAP-21 planning factors, stakeholder feedback, and the review of ongoing planning efforts. The *2040 LATS LRTP* guiding principles and goals relate directly to the safe and efficient

movement of goods via highway, rail, and air as well as how those systems contribute to the overall transportation network. Economic vitality is stated as an independent guiding principle that is largely dependent on freight movement. Freight movement is also an important component of congestion mitigation, barriers to mobility, and multimodal integration.

Planning Considerations

MAP-21 Planning Factors

Federal MAP-21 legislation has also recognized the importance of freight to the overall transportation network. Seven of the eight MAP-21 planning factors include specific or indirect mention of freight movement.

MAP-21 Planning Factors

- 1) **Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.**
- 2) **Increase the safety of the transportation system** for motorized and non-motorized users.
- 3) **Increase the security of the transportation system** for motorized and non-motorized users.
- 4) **Increase the accessibility and mobility of people and freight.**
- 5) **Protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns.**
- 6) **Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.**
- 7) **Promote efficient system management and operation.**
- 8) **Emphasize the preservation of the existing transportation system.**

Public Perception

The planning process for the *2040 LATS LRTP* supplemented current freight and aviation plans with public input to inform the freight and aviation recommendations. Recommendations focused on projects that aligned with the needs of the region and improved connections to and from major destinations. Stakeholder input was used to weigh in at major milestones, refine concepts and needs, and confirm the recommendations. Based on a review of current conditions and stakeholder comments, the concerns and constraints focused on how the existing and proposed transportation network could leverage the community's economic assets including the existing CSX Rail line and the two local airports (Beaufort County Airport, Hilton Head Airport). Improvements to the region's strategic corridors and priority intersections will provide better connections to destinations (e.g. airports, warehouses, shipping facilities, stores, etc.) and between other modes.

Freight

Freight movement often is spread across various transportation modes: Highways (trucks, vans, and cars), Railroads, Airports (air transport), Maritime ports (ships), and Pipelines. Freight movement in the Lowcountry area historically has been controlled by highway transport. The primary highway freight routes to and from the Lowcountry area include most of its major thoroughfares: I-95, US 17, US 278, US 21 and US 21-Business, SC 170, and SC 46. The highway freight routes listed above provide movement in all directions including coastal and inland access between all municipalities in the Lowcountry area.

CSX operates a railroad from Yemassee, SC, to Savannah, GA, which generally borders I-95. There is also an abandoned rail line in the study area that was decommissioned in 2009 after rail ownership transferred to the Beaufort-Jasper Water and Sewer Authority (BJWSA). Since then, BJWSA began removing the physical railroad to construct trails along the right-of-way. Currently, the partially constructed trail along the Port Royal Railroad right-of-way is called the Spanish Moss Trail. Air freight is available via Hilton Head Island Airport, which is located in the northeastern corner of Hilton Head Island.

Highways

I-95 is one of the nation's busiest freight corridors, connecting the east coast's major population and economic centers. In South Carolina, up to 25 percent of vehicles traveling on I-95 are trucks, second only to I-85. Within Beaufort and Jasper Counties, these interstate highways are supplemented by numerous US highways, including US 278, US 17, and US 21. Collectively, the interstate and US highways carry the most traffic — both in terms of personal vehicles and commercial trucks. But some SC highways, especially outside of the city limits, also carry significant freight traffic. These corridors include Okatie Highway (SC 170), May River Road (SC 46), and SC 128 near Port Royal.

From a statewide perspective, the implication of freight activity on the highway network is significant. SCDOT maintains more than 840 miles of interstate highways. SCDOT restricts overweight trucks weighing up to 100,000 pounds to designated truck routes consisting of interstates, US highways, and SC highways, provided the truck operators obtain permits. No vehicles are permitted to be over 13'6" in height. A map of these facilities is shown on page 8-5. Given freight activity increases due to industrial growth and expansion of port facilities, SCDOT predicts that by 2030 more than 50 percent of the interstate highways will operate below acceptable levels of service and up to 50 interchanges will need to be reconstructed. On the state's primary and secondary roads, more than 1,100 miles (3% of total miles) will need to be improved at a cost of \$7 billion in today's dollars.

Rail

The Association of American Railroads (AAR) defines three railroad classifications: Class I, Class II (Regional), and Class III (Shortlines). The classifications are based on annual operating revenues with the ranges periodically changing to account for inflation and other factors. The number of Class I railroads has shrunk from more than 130 in 1939 to only seven in the United States and Canada today. The following table provides more detail on the classifications.

Railroad Profiles					
Railroad	Classification Range (in millions)	Number	Miles	Employees	Revenues
Class I	More than \$467	7	95,264	163,464	\$67.6 billion
Class II (Regional)	\$37.4 to \$467	21	10,355	5,507	\$1.4 billion
Class III (Shortlines)	Less than \$37.4	546	32,858	12,293	\$2.6 billion
Total		574	138,477	181,264	\$71.6 billion

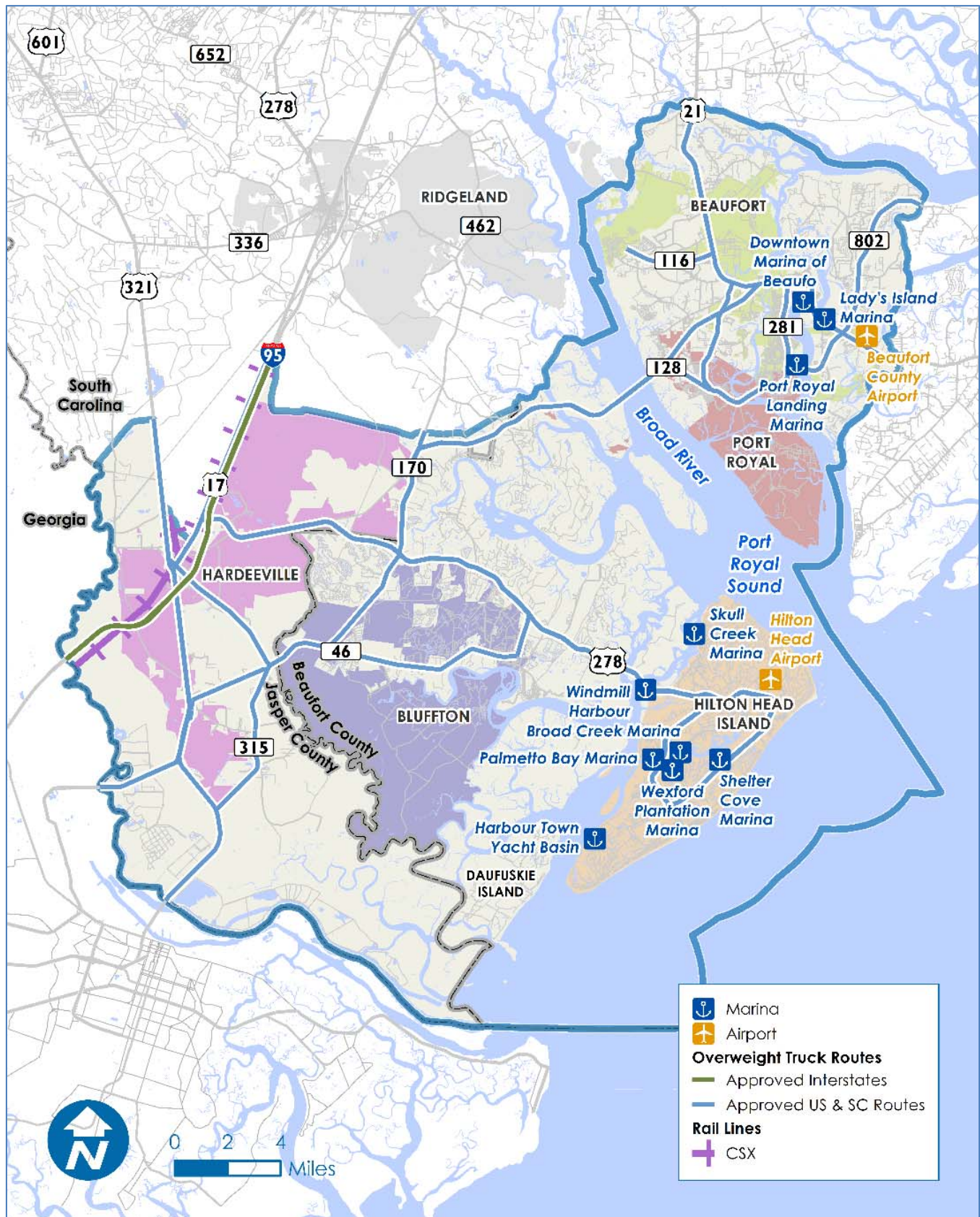
Source: Association of American Railroads, Railroad Facts, 2013 Edition

Class II railroads typically only operate within a particular region. However, they offer well equipped main lines for faster movement of freight as well as local switching operations. Class III railroads are the industry's smallest in terms of miles of track and revenue but also the most numerous in the nation with approximately 500 in operation.

The CSX rail line that runs through the western portion of the LATS study area is classified as a Class I railroad. CSX operates both passenger and freight trains that use this line going through Hardeeville. The alignment of this route is shown on the map on page 8-5.



*CSX Railroad and US 17
in Hardeeville*



Aviation

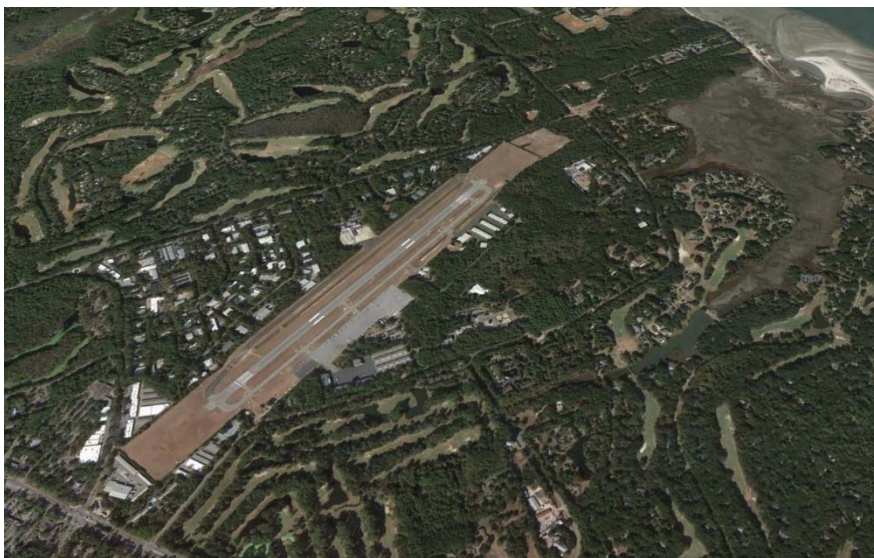
South Carolina's airports are an important component of the statewide transportation system and a catalyst for the state's economy. Aviation needs—including passengers on commercial airlines, those piloting a private aircraft, and the movement of goods—are fulfilled through a combination of large airports and smaller facilities across the state. These facilities fall into one of three major categories:

- **Commercial Service/Primary Airports** include facilities that serve regularly scheduled passenger service. The three largest facilities in the state are Charleston International Airport, the Greenville-Spartanburg International Airport, and the Myrtle Beach International Airport. Other airports with scheduled passenger service in the state include the Columbia Metropolitan Airport, the Florence Regional Airport, and the Hilton Head Airport.
- **General Aviation Airports** include smaller facilities that exist in the majority of counties throughout the state. They typically have paved runways 2,000 feet to 5,500 feet in length and can accommodate small (single engine) and medium-sized (multi-engine) aircrafts. These airports often provide opportunities for businesses with suitable aircrafts to avoid the use of larger facilities and minimize air travel associated with lag time. They also have proven useful in attracting business to communities throughout the state. – There are 45 general aviation airports located within South Carolina.
- **Reliever Airports** are large general aviation airports that provide additional capacity when the area's primary commercial airport reaches capacity. The Jim Hamilton – L.B. Owens Airport in Columbia and the Rock Hill/York County Airport are the state's reliever airports.

Hilton Head Island Airport

Hilton Head Island Airport, categorized as a primary commercial service airport, is serviced by American Airlines and currently offers 8 arriving flights from Charlotte, NC and 9 flights departing for Charlotte, NC. There is also one Saturday flight to and from Washington D.C. The airport is owned, operated, and managed by Beaufort County. A Master Plan for the Hilton Head Island Airport was completed in 2009. The airport totaled 54,712 enplanements in CY 2014, which is a slight decrease over CY 2013.

Based on 2009 aviation forecasts for Hilton Head Island Airport, total aircraft operations is estimated to increase



approximately 40% by 2029—with the majority of operations increasing in the commercial and general aviation itinerant categories. The number of commercial service passenger enplanements is expected to increase by 20,000 in 2029. The most significant recommendation from the Hilton Head Island Airport Master Plan is an extension of runway 03/21.

Beaufort County Airport

Beaufort County Airport is a county-owned, public use airport located on Lady's Island in Beaufort, South Carolina. Categorized as a general aviation facility, Beaufort County Airport is used for civil aviation operations that are not scheduled. It is also used for non-scheduled air transport for hire. A Master Plan for the Beaufort County Airport was completed in August 2011.



Chapter 9 | Financial Plan

Introduction

The financial plan, required by MAP-21 for long range transportation plans, shows proposed investments that are realistic in the context of reasonably anticipated future revenues over the life of the plan. The horizon years set for the *LATS 2040 LRTP* are 2019, 2024, and 2040. Meeting this test is referred to as “financial constraint.” The mix of transportation recommendations proposed to meet metropolitan transportation needs over the next 25 years is consistent with revenue forecasts. The financial plan details both proposed investments toward these recommendations and revenue forecasts over the life of the plan.

Financial Plan Development

The proposed recommendations were developed in collaboration with the Lowcountry Area Transportation Study MPO Technical Committee and Policy Committee members, the Lowcountry Council of Governments, Lowcountry Regional Transit Authority (LRTA), and the South Carolina Department of Transportation (SCDOT). These projects include roadway, freight, bicycle, pedestrian, and transit facilities and services for the life of this plan. The financial plan incorporates existing and committed projects from the MPO area 2014-2019 Transportation Improvement Program (TIP) along with the future projects recommended in this plan. These recommendations also reflect travel demand benefits and socioeconomic impacts identified in Chapters 3 and 4. Finally, these projects result from an extensive public participation process that included three community workshops, stakeholder interviews, an interactive online survey, and the participation of the Technical Committee. More information on the community outreach efforts can be found in Chapter 1.

Revenue forecasts were developed after a review of previous state and local expenditures, current funding trends, and likely future funding levels. The revenue forecasts involved consultation with LATS, LRTA, and SCDOT. All dollar figures discussed in this section initially were analyzed in current year dollars (i.e. 2015) and then inflated to reflect projected year of expenditure or implementation. Based on best practices around the southeast region, an annual inflation rate of 3% was used to forecast costs and revenues.

This chapter provides an overview of revenue assumptions, probable cost estimates, and financial strategies along with the methodology used to derive these values. Since this is a planning level funding exercise, all funding programs, projects, and assumptions will have to be re-evaluated in subsequent plan updates.

Financial Planning Scenarios

Roadway

The table below reflects the proposed costs and revenues for highway projects with current funding sources. The costs and revenues are broken up between highway capital projects and maintenance. An estimated \$166.6 million and \$173.0 million will be available for highway capital and maintenance projects within the LATs region, respectively, in the funded plan.

Roadway Revenue/Cost Forecast							
Horizon Year	Revenues			Costs			Balance
	Capital	Maintenance	Total	Capital	Maintenance	Total	
2015-2019	\$19,876,397	\$25,050,000	\$44,926,397	\$19,876,397	\$25,050,000	\$44,926,397	\$0
2020-2024	\$27,159,277	\$27,396,734	\$54,556,011	\$26,511,727	\$27,396,734	\$53,908,461	\$647,550
2025-2040	\$119,537,406	\$120,582,536	\$240,119,942	\$119,686,000	\$120,582,536	\$240,268,536	(\$148,594)
Total	\$166,573,079	\$173,029,269	\$339,602,350	\$166,074,124	\$173,029,269	\$329,199,317	\$498,956

Roadway Maintenance Funding

Maintenance funding in the LATs region is provided by SCDOT through their pavement and reconstruction program and their bridge program. Pavement and reconstruction funds are used for both the pavement resurfacing and pavement preservation programs. As a result, these funds are primarily used for roadway maintenance, though preservation strategies such as shoulder widenings can also be funded in this manner. Bridge program funds are used to rehabilitate or replace structurally deficient or functionally obsolete bridges across the state. The pavement and reconstruction funding levels have remained relatively stable over the past several years and as such are not expected to increase. Similarly, bridge program funds are not anticipated to increase over time. As a result, maintenance funds are shown here as keeping pace with inflation. Projecting these funding sources through the 2040 horizon year of the LRTP, the total maintenance funding available for the LATs region is approximately \$173.0 million. The maintenance costs generated annually are assumed to equal the revenue available. LATs should continue to monitor maintenance funding trends. Decreasing maintenance funding levels could negatively impact the feasibility of future capacity expansion projects.

Capital Roadway Funding

Projections of funding for capital roadway projects are based on current funding levels shown in the draft FY 2015-2019 LATs Transportation Improvement Program (TIP). Revenue forecasts were adjusted to reflect a 3% inflation rate with no additional growth beyond inflation. Guides share funds are assumed to be the only funds available for System Upgrade projects. While other funding sources such as safety, interstate program, and State Infrastructure Bank do exist, the allocation of those funding sources is not determined at the MPO level. As a result, this plan assumes that no funding is being derived from those areas.

The TIP indicates that all available guideshare funds will be used to support the right-of-way acquisition and construction of the US 17 widening project between SC 315 and the Georgia state line. Given the magnitude of this project, the guideshare allocation for 2020-2022 is also assumed to be completely allocated in this manner. As a result, guideshare funds are not assumed to be available for other projects until the year 2023. With this in mind, the available capital highway funding for LATS following the conclusion of the US 17 widening totals approximately \$130.9 million.

Horizon Year Methodology

After establishing the funding levels, the next step was to consider what roadway recommendations can be included as part of the funded plan. While it would be ideal to implement all of the recommended projects, only a portion can be accommodated in the financially constrained plan. As a result, the project prioritization process detailed in Chapter 4 was referenced, giving higher priority projects first consideration for available funds. A series of horizon years were established to categorize and prioritize the capital roadway projects included in the LRTP. These horizon years are described as follows:

1. **2019 – Transportation Improvement Program horizon year.** Projects identified between 2015 and 2019 comprise the Draft LATS FY 2015-2019 TIP. These projects were not subject to the prioritization methodology detailed in Chapter 5 since they had already been identified by the region and the state as priority projects. Furthermore, funding has been allocated for all or portions of these projects, rendering them exempt from the LRTP prioritization process.
2. **2024 – Short-Term horizon year.** This category represents all of the projects that are anticipated to be funded by the long-range transportation plan's 2024 interim year. 2024 was identified since it is five years past the final year of the TIP. As mentioned in the highway revenue discussion, limited funds are available for use in this horizon year period due to the continuation of the US 17 widening project in the TIP.
3. **2040 – Long-Term horizon year.** This horizon year period encompasses the remainder of the financially constrained plan. The remaining available funds from the 2024 horizon year period were added into the 2040 period for allocation to projects. In order to make the best use of available funds, a mix of smaller and larger scale project types were identified to be funded during the life of the LRTP.
4. **Beyond 2040 – Vision Plan.** The Vision Plan is composed of all projects that cannot be funded within the 2040 horizon year of the LRTP. While a need has been identified for these projects, projected revenues are not anticipated to be adequate to fund all of these projects within the life of the plan. The cost of these unfunded capital highway projects (referred to as the Vision Plan) is \$1.4 billion.

The roadway projects included in the System Upgrade (e.g. guideshare) portion of the Draft LATS FY 2015-2019 TIP are shown in the table below. The project cost figure for the US 17 project only includes the portion of the project being funded during that five year period by LATS. An additional \$21 million has already been allocated in the TIP for the Lowcountry COG. A future second phase including the bridge is estimated to cost between \$8 and \$15 million dollars, and is unfunded at this time. It should be noted that with the exception of US 21 at 21 Business, all of the intersection improvement projects listed here are noted to receive funding in FY 2014.

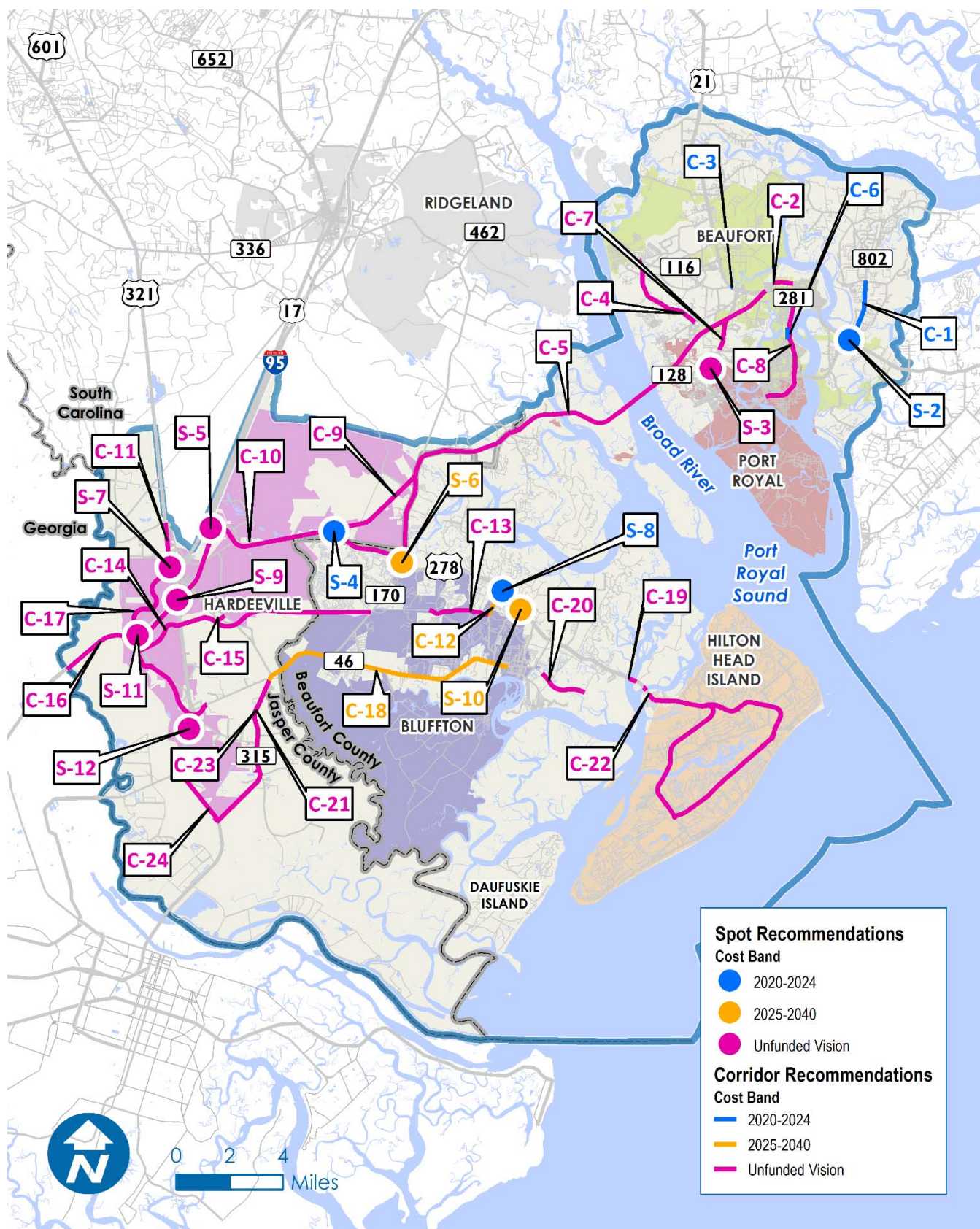
2015-2019 TIP Roadway System Upgrade Projects			
Route	County	Project Cost	Status
Intersection Improvements - US 278 at Windmill Harbor	Beaufort	\$822,000	Substantially complete
Intersection Improvements - US 21 at Grays Hill	Beaufort	\$1,200,000	Substantially complete
Intersection Improvements - SC 802 at S-112 (Holly Hall)/S-72 (Brickyard)	Beaufort	\$2,300,000	Out to bid in Jan. 2016
Intersection Improvements - US 21 at S-86 (Shanklin)	Beaufort	\$950,000	Substantially complete
Intersection Improvements - US 21 at US 21 Business	Beaufort	\$870,000	Currently out for bid
US 17 (Georgia State Line to SC 315), Widening	Jasper	\$19,000,000	Preliminary design

The following tables and map present the projects in the 2020-2024, 2025-2040, and unfunded vision periods, project identifiers, and cost estimates in nominal dollars.

Financially Constrained Roadway Projects				
Horizon Year	Project ID	Route	Project Type	Cost
2020-2024	S-8	US 278 and Buck Island Rd	Intersection	\$1,107,000
	S-4	US 278 and Argent Blvd	Intersection	\$1,107,000
	S-2	US 21 and SC 802	Intersection	\$3,690,000
	C-1	SC 802 from US 21 to Brickyard Point Rd/Holly Hall Rd	ITS/Access Management	\$4,317,000
	C-6	New Location Roadway from Myrtle St to Reynolds St	New Location	\$1,673,000
	C-3	New Location Roadway from SC 170 to US 321	New Location	\$209,000
2025-2040	S-6	US 278 and SC 170	Interchange	\$67,098,000
	C-18	SC 315/SC 46 from SC 170 to Pin Oak St	ITS/Access Management	\$45,744,000
	S-10	US 278 and Simmonsville Rd (S-7-474)	Intersection	\$3,355,000
	C-12	Buck Island Rd from Bluffton Pkwy to US 278	ITS/Access Management	\$3,556,000

Vision Plan (Financially Unconstrained Projects)

Project ID	Route	Project Type	Cost
C-5	SC 170 from US 278 to US 21 Bus	ITS/Access Management	\$75,071,000
S-9	I-95 and US 17	Interchange	\$53,915,000
C-19	US 278 bridges over Mackay Creek and Skull Creek	Bridge Widening	\$431,318,000
S-5	I-95 and US 278	Interchange	\$86,264,000
C-22	US 278 / US 278 Bus in Hilton Head Island	ITS/Access Management	\$54,109,000
C-21	SC 315 / SC 46 from US 17 to SC 170	ITS/Access Management	\$26,310,000
C-8	Ribaut Rd (US 21 / SC 281) from Lenora Rd to US 21 Bus	ITS/Access Management	\$15,420,000
C-7	US 21 from Mink Point Blvd to SC 170	ITS/Access Management	\$3,925,000
C-4	Joe Frazier Rd from SC 116 to Broad River Blvd	ITS/Access Management	\$15,031,000
C-9	Argent Blvd from US 278 to SC 170	Roadway Widening	\$34,398,000
C-23	SC 315 / SC 46 from US 17 to SC 170	Roadway Widening	\$54,777,000
S-11	I-95 and Riverport Pkwy	Interchange	\$53,915,000
S-7	US 321 and SC 46	Intersection	\$1,941,000
S-3	US 21 and Grober Hill Rd (S-7-23)	Intersection	\$4,313,000
C-10	US 278 from I-95 to SC 170	Roadway Widening	\$98,125,000
C-11	US 321 from US 17 to Honey Hill Rd	Roadway Widening	\$15,765,000
C-16	I-95 from Georgia line to US 278	Roadway Widening	\$87,924,000
C-15	From Bluffton Pkwy to SC 46	New Location	\$3,903,000
C-2	From S-281 to S-167	New Location	\$5,413,000
C-20	Stroup Lane extension from Burnt Church Rd to Buckingham Plantation Dr	New Location	\$7,548,000
C-13	Bluffton Pkwy from Buckwalter Pkwy to Buck Island Rd	New Location	\$29,330,000
C-24	US 17 from SC 315 to SC 170	Roadway Widening	\$21,544,000
S-12	US 17 and SC 170	Intersection	\$1,941,000
C-14	Bluffton Pkwy from Riverport Pkwy to SC 170	New Location	\$90,404,000
C-17	Riverport Pkwy from SC 170 to US 321	New Location	\$100,540,000



Public Transportation

The table below reflects the proposed costs and revenues for public transportation in the region over the life of the LRTP. The LRTA anticipates receiving small urban area 5307 funding beginning in either 2015 or 2016. Based on current projections provided by the LRTA, the annual allocation for the first year provides approximately \$197,200 for capital administration, \$150,000 for planning, \$412,500 for capital, and \$312,700 for operations. Funding for administration, planning, and capital needs are divided as 80% federal, 10% state, and 10% local. For operations, funding is split up as 50% federal, 25% state, and 25% local. In order to maintain a conservative estimate, projected funding levels in FY 2015-2016 are anticipated to remain consistent through the life of the TIP, after which point they will increase 3% annually with inflation. Following the development of a transit system development plan, specific capital improvements may be identified. Following that time these improvements should be incorporated into the update of the 2040 LATS LRTP.

Additional funding for transit within the region is provided through a 5311 grant awarded to the LRTA as a subrecipient of the SCDOT. Since these funds come directly from SCDOT, they are not incorporated within the LRTP.

The table below summarizes projected capital and operating revenues for the LRTA.

Transit Capital and Operating Revenues		
Horizon Year	Capital Revenue	Operating Revenue
2015-2019	\$3,798,691	\$1,563,608
2020-2024	\$4,154,560	\$1,710,090
2025-2040	\$18,285,662	\$7,526,698
Totals	\$26,238,913	\$10,800,395

Bicycle and Pedestrian

Currently, new bicycle and pedestrian facilities in the LATS region are either funded locally or pursued through the Transportation Alternatives Program (TAP). TAP funds are awarded through a grant program. For areas between 5,000 and 200,000 in population, SCDOT has allocated approximately \$1.8 million per year for TAP funding grants. Grants can be awarded up to a maximum project value of \$400,000. Communities within the LATS area are currently using this funding source and intend to aggressively pursue it into the future. There are two projects currently shown as being funded through this source in the 2015-2019 TIP:

- Town of Bluffton – May River Infrastructure Extension (sidewalk & drainage). \$400,000 in Enhancement Funding (FY16), \$491,330 in Town funds
- City of Beaufort – Allison Road Pedestrian Connector (Multi-use path/streetscape). \$400,000 in Enhancement Funding (FY16), \$347,260 in City funds

The assumption made in this financial plan is that one TAP grant will be awarded at its maximum value every three years. This amount is assumed to remain constant through the years of the TIP, and then increase 3% annually with inflation. The table below shows the projected funding levels for bicycle and pedestrian projects through the life of the LRTP.

Bicycle and Pedestrian Revenues	
Horizon Year	Projected Revenue
2015-2019	\$666,667
2020-2024	\$729,121
2025-2040	\$3,209,116
Totals	\$4,604,904

In order to maximize flexibility in funding and implementation, bicycle and pedestrian projects have not been separately prioritized. Many of the bicycle and pedestrian projects involving federal or state funding can be included with other roadway capital and maintenance projects as incidental improvements. The bicycle and pedestrian recommendations shown in **Chapter 6** include over 51 miles of striped bicycle lanes, 5 miles of wide shoulders, 67 miles of multi-use paths, and 9 miles of unpaved trails. When estimating the total cost of all of these projects in current year dollars, the cost exceeds \$94 million. The clear message is that additional funding will be needed above and beyond what is available through SCDOT to continue developing a bicycle and pedestrian-friendly region.

Aviation

Aviation projects in the LATS region are funded using a blend of federal, state, and local funds. Federal funding is disbursed through the FAA and comprises the main funding source for the airport. Historic and projected funding levels for the Hilton Head Island Airport (HHH) and the Beaufort County Airport (ARW) were obtained from the respective airports' master plans. Expenditures at the two airports are assumed to equal their projected revenues. The table below shows the estimated total revenues for aviation capital funding in the LATS area.

Aviation Revenues	
Horizon Year	Projected Revenue
2015-2019	\$21,620,842
2020-2024	\$22,971,186
2025-2040	\$55,579,549
Totals	\$100,171,577

Alternative Funding Strategies

Based on the revenue assumptions developed in this financial plan, the total projected cost for all non-TIP highway capital projects within the LATS MPO area is approximately \$3.4 billion. Of this total, approximately \$3.3 billion is expected to remain unfunded during the 2040 horizon year. Future transit needs exist in both capital and operational categories. In addition, a significant funding gap exists between the full bicycle and pedestrian recommendations in this plan and the projected funding levels. As a result, it is important to identify potential funding sources for these projects as well as for projects from other modes.

State revenues alone will not sufficiently fund a systematic program of constructing transportation projects in the LATS area. Therefore, the region must consider alternative funding measures that could allow for the implementation of this plan. One alternative funding measure, local jurisdiction impact fees, is already being implemented throughout the study area. Several alternative funding measures under consideration in other areas follow.

Local Option Sales Tax

Many communities in South Carolina have decided to introduce a “Pennies for Progress” sales tax to fund transportation and other capital projects. Both Beaufort and Jasper County have recently declined to introduce a 1-penny local option sales tax onto the ballot. In each instance, the sales tax would have gone to fund a variety of capital projects, including transportation. The local option sales tax is implemented at the county level and typically requires a voter referendum. The sales tax is temporary and may be renewed at the time of its expiration date. A local option sales tax can be an effective way of funding projects independent of the need for federal and state funds. In addition, many areas of the state are using their sales tax funding to serve as the local match for projects, thereby expanding the financial impact these dollars can make.

Transportation Bonds

Transportation bonds have been instrumental in the strategic implementation of local roadways and non-motorized travel throughout South Carolina. Voters in communities both large and small regularly approve the use of bonds in order to improve their transportation system. Projects that historically have been funded through transportation bonds include sidewalks, road extensions, new road construction, and streetscape enhancements.

Developer Contributions

Through diligent planning and earlier project identification, regulations, policies, and procedures could be developed to protect future arterial corridors and require contributions from developers when the property is subdivided. These measures would reduce the cost of right-of-way and would in some cases require the developer to make improvements to the roadway that would result in a lower cost when the

improvement is actually constructed. To accomplish this goal, it will take a cooperative effort between local planning staff, SCDOT planning staff, and the development community.

One area where developers can be expected to assist in the implementation of transportation improvements is for new collector streets. Collector streets support the traffic impacts associated with local development. For this reason, developer contributions should be responsible sharing the cost of these improvements.

Oversize Agreement

An oversize agreement provides cost sharing between the city/county and a developer to compensate a developer for constructing a collector street instead of a local street. For example, instead of a developer constructing a 28-foot back-to-back local street, additional funding would be provided by the locality to upgrade the particular cross-section to a 34-foot back-to-back cross section to accommodate bike lanes.

Grant Anticipation Revenue Vehicles (GARVEE) Bonds

GARVEE Bonds can be utilized by a community to implement a desired project more quickly than if they waited to receive state or federal funds. These bonds are let with the anticipation that federal or state funding will be forthcoming. In this manner, the community pays for the project up front, and then receives debt service from the state. GARVEE bonds also are an excellent way to capitalize on lower present-day construction and design costs, thereby finishing a project more quickly and economically than if it was delayed to meet state timelines.

Bicycle and Pedestrian Funding

Bicycle and pedestrian projects are often eligible for their own funding sources. For instance, the Robert Wood Johnson foundation funds a grant program called Active Living by Design. The purpose of this program is to provide communities with a small grant to study bicycle, pedestrian, or other healthy living initiatives. There are also grand programs available through FHWA that assist with people reaching federal lands, such as US Fish and Wildlife Service properties or US Forest Service lands. Funding for these projects is prioritized if it includes bicycle or pedestrian improvements that are documented in an existing plan (for more information, visit <http://flh.fhwa.dot.gov/programs/flap/> or <http://www.efl.fhwa.dot.gov/programs/fed-lands-southcarolina.aspx>). There are other such grant programs in existence for bicycle and pedestrian projects, which would help to supplement the funding currently received by these modes.

Action Plan

Planning for future needs and matching them to available funding will continue to pose a challenge for the LATS MPO. In light of growing demands on the region's transportation system and limited funding for both capital projects and maintenance, LATS and its member jurisdictions should consider the following action items when developing a strategy to obtain funding for high priority projects:

- Continue to identify and utilize discretionary funds such as Transportation Alternatives Program funds or TIGER grants.
- Continue to partner with the Department of Defense to identify and support transportation projects that improve the functionality of the region's military installations.
- Work with LRTA to develop a prioritized list of capital needs and services.
- Coordinate with LRTA to identify potential alternative funding sources that are supportive of transit needs.
- Maintain existing and seek out new partnerships throughout the LATS region.
- Investigate alternative funding sources that may be viable in the LATS region.
- Educate local officials and the public about alternative funding sources.

Appendix A | Project Sheets

Introduction

Project sheets have been created for the roadway projects within the LATS region to support the development of the *2040 Lowcountry Area Transportation Study (LATS) Metropolitan Planning Organization's Long Range Transportation Plan (2040 LATS LRTP)*. The purpose of the project sheets is to show slightly more detail on project recommendations. As a planning level study, it is not the intent of the *2040 LATS LRTP* to provide extensive project description. Instead, the plan outlines expected improvements that have been factored into the financially-constrained plan. The following points are emphasized:

- Probable costs reflect current year cost estimates. Five-year cost bands have been identified as part of the financial plan for projects that are expected to be funded by the LRTP's 2040 horizon year.
- Existing operational characteristics were derived primarily from the 2010 and 2040 LATS Regional Travel Demand Model.
- Existing crash rates are based on SCDOT crash data spanning January 2010 to December 2012.
- Future operational characteristics represent projected operations along the roadway or at the intersection in 2040 without the implementation of the recommended projects.
- The Regional Travel Demand Model is intended to be a tool for regional analysis. Travel Demand Model data at the corridor or intersection level should only be used for planning-level purposes.
- Other data sources include ArcGIS data and information provided by SCDOT.
- Operational data for new location projects are estimates because they are not included in the Travel Demand Model.

- Estimated volumes are based on the assumption that 50% of the traffic from the nearest parallel route would travel on the new road for both the future year and the base year.
- Estimated capacities are based on FDOT LOS D volume thresholds.

The location maps on the project sheets highlight intersection projects in red circles, interchange projects in orange circles, ITS / access management projects in blue, bridge widening projects in purple, roadway widening projects in green, and new location projects in orange.

The project sheets also include icons indicating which LATS 2040 LRTP Guiding Principles are relevant to each project. The Guiding Principles were developed to provide direction for the plan and ultimately, the recommendations included in the plan. The Guiding Principles are:



Barriers to Mobility



Congestion Mitigation



Economic Vitality / Tourism



Environmental Stewardship

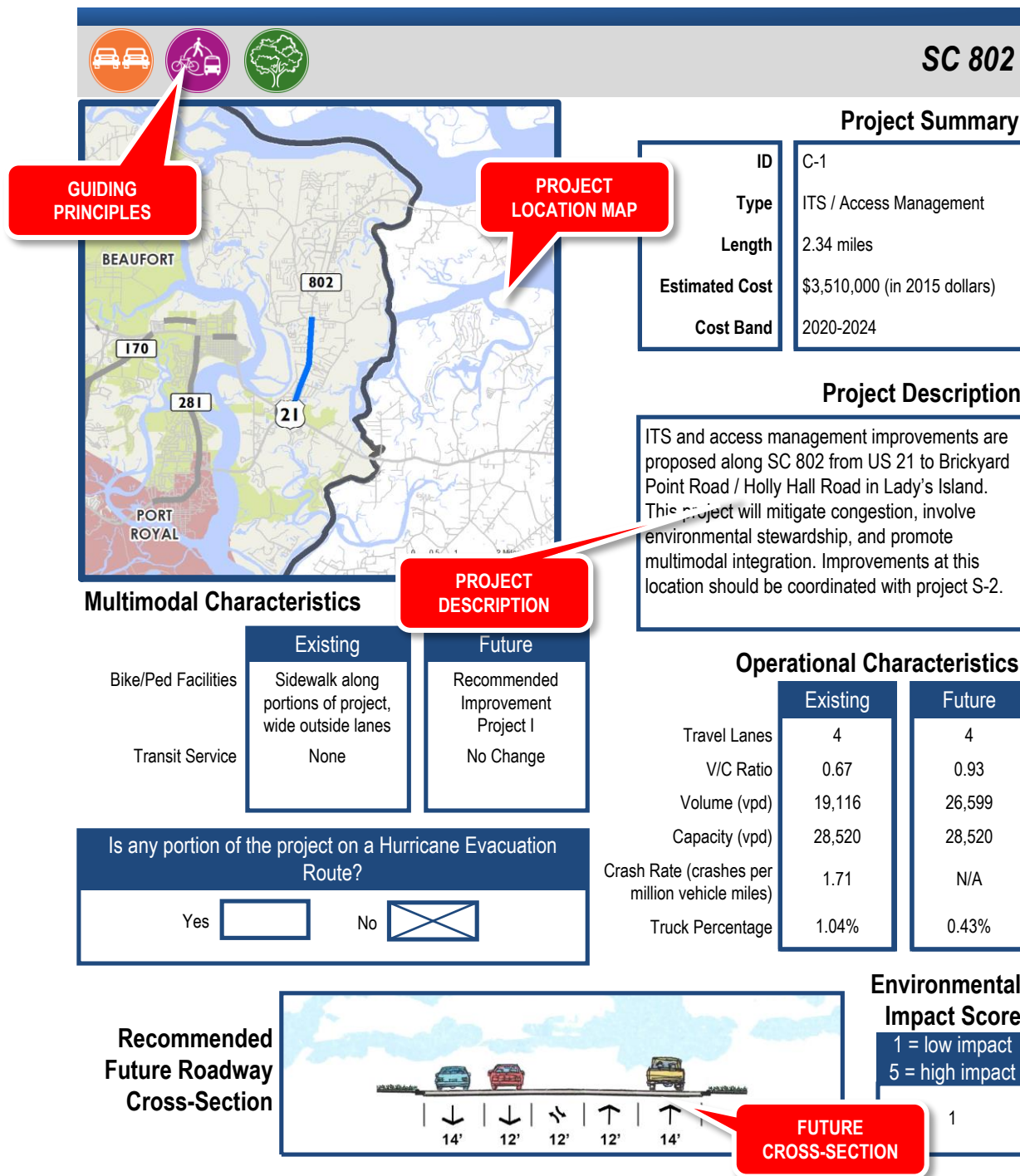


Livability



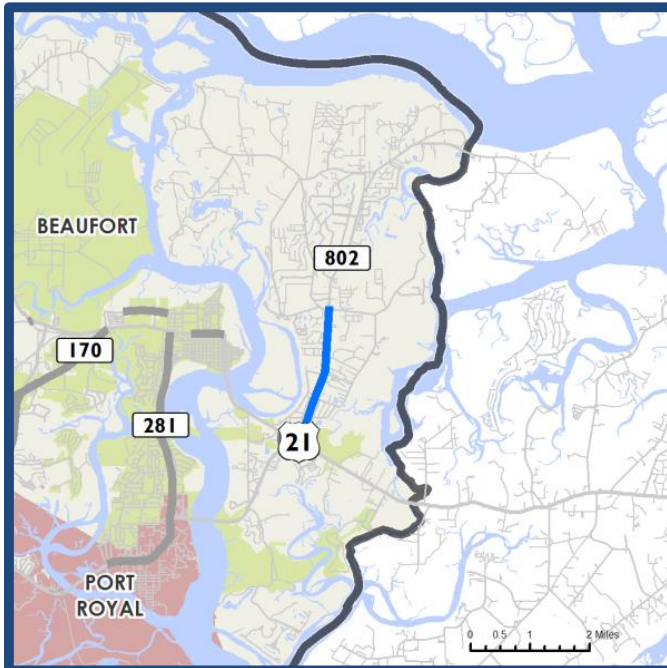
Multimodal Integration

An example project sheet is shown on the following page with callout text describing each of the project sheet elements.





SC 802



Project Summary

ID	C-1
Type	ITS / Access Management
Length	2.34 miles
Estimated Cost	\$3,510,000 (in 2015 dollars)
Cost Band	2020-2024

Project Description

ITS and access management improvements are proposed along SC 802 from US 21 to Brickyard Point Road / Holly Hall Road in Lady's Island. This project will mitigate congestion, involve environmental stewardship, and promote multimodal integration. Improvements at this location should be coordinated with project S-2.

Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	Sidewalk along portions of project, wide outside lanes	Recommended Improvement Project I
Transit Service	None	No Change

Is any portion of the project on a Hurricane Evacuation Route?

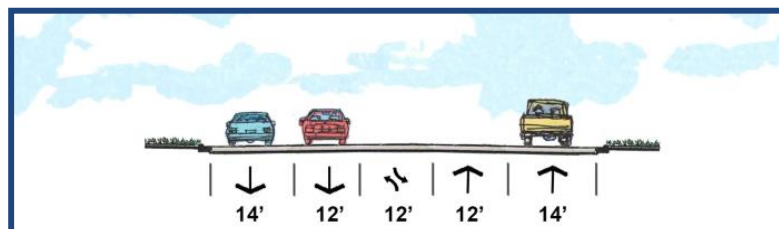
Yes ☐

No ☒

Operational Characteristics

	Existing	Future
Travel Lanes	4	4
V/C Ratio	0.67	0.93
Volume (vpd)	19,116	26,599
Capacity (vpd)	28,520	28,520
Crash Rate (crashes per million vehicle miles)	1.71	N/A
Truck Percentage	1.04%	0.43%

Recommended Future Roadway Cross-Section



Environmental Impact Score

1 = low impact
5 = high impact

1



NEW LOCATION



Project Summary

ID	C-2
Type	New Location
Length	0.75 miles
Estimated Cost	\$2,510,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

A new two-lane roadway is proposed from S-281 to S-167 in Beaufort. This project will mitigate congestion, address barriers to mobility, and enhance livability with its complete streets elements. The Boundary Street Master Plan includes features such as narrow lanes, parallel parking, planting strips, and sidewalks.

Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	Sidewalks along both sides
Transit Service	None	None

Is any portion of the project on a Hurricane Evacuation Route?

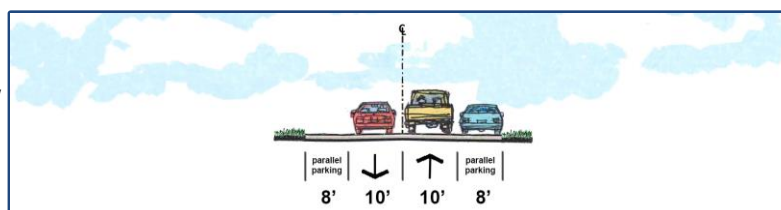
Yes ☐

No ☒

Operational Characteristics

	Existing	Future
Travel Lanes	N/A	2
V/C Ratio	N/A	0.19
Volume (vpd)	N/A	2,486
Capacity (vpd)	N/A	13,300
Crash Rate (crashes per million vehicle miles)	N/A	N/A
Truck Percentage	N/A	0.00%

Recommended Future Roadway Cross-Section



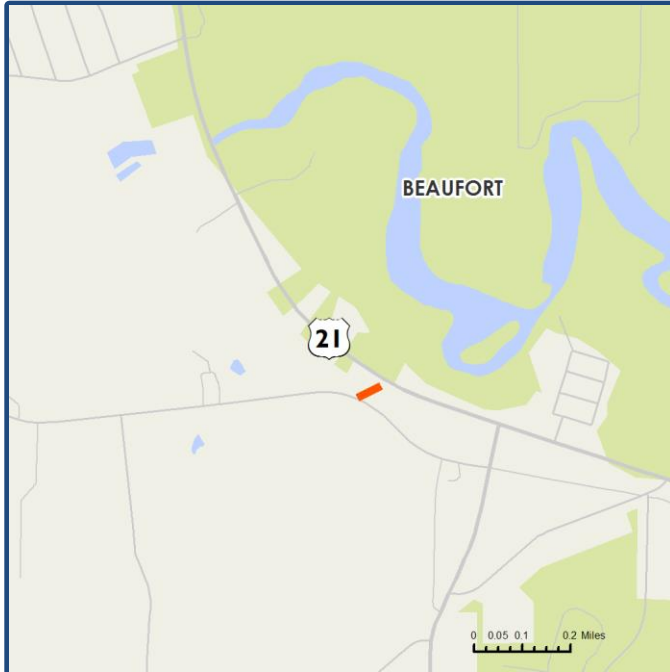
Environmental Impact Score

1 = low impact
5 = high impact

5



NEW LOCATION



Project Summary

ID	C-3
Type	New Location
Length	0.08 miles
Estimated Cost	\$170,000 (in 2015 dollars)
Cost Band	2020-2024

Project Description

A new two-lane roadway is proposed from US 21 to S-73 outside of Beaufort. This project will mitigate congestion and address barriers to mobility. Proposed pedestrian enhancements on this roadway will connect to the Spanish Moss Trail.

Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	Sidewalks along both sides
Transit Service	None	None

Is any portion of the project on a Hurricane Evacuation Route?

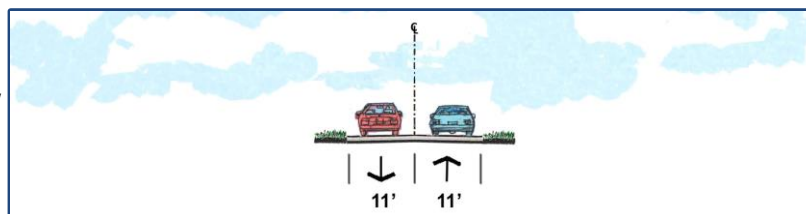
Yes ☐

No ☒

Operational Characteristics

	Existing	Future
Travel Lanes	N/A	2
V/C Ratio	N/A	0.62
Volume (vpd)	N/A	9,994
Capacity (vpd)	N/A	16,200
Crash Rate (crashes per million vehicle miles)	N/A	N/A
Truck Percentage	N/A	0.00%

Recommended Future Roadway Cross-Section



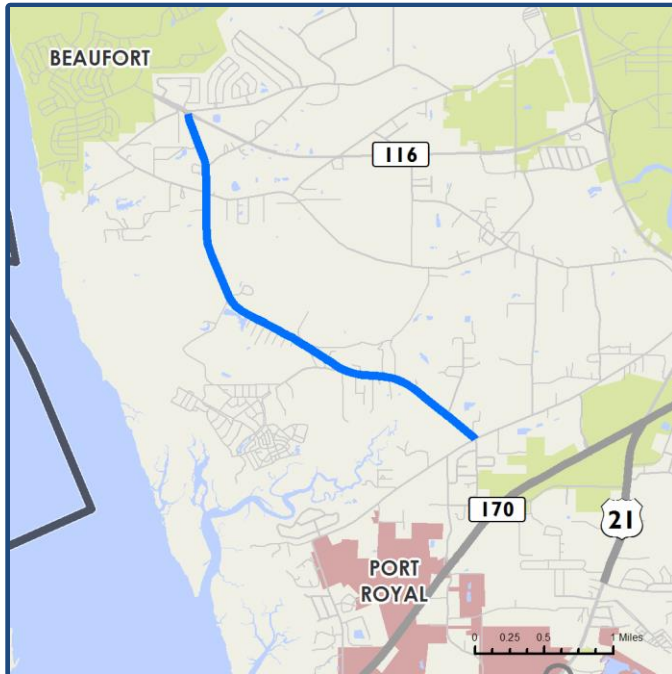
Environmental Impact Score

1 = low impact
5 = high impact

3



JOE FRAZIER ROAD



Project Summary

ID	C-4
Type	ITS / Access Management
Length	3.48 miles
Estimated Cost	\$6,970,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

ITS and access management improvements are proposed along Joe Frazier Road from SC 116 to Broad River Boulevard. This project will mitigate congestion and promote multimodal integration.

Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	Proposed New Sidewalk and Project AA
Transit Service	None	No Change

Is any portion of the project on a Hurricane Evacuation Route?

Yes

☐

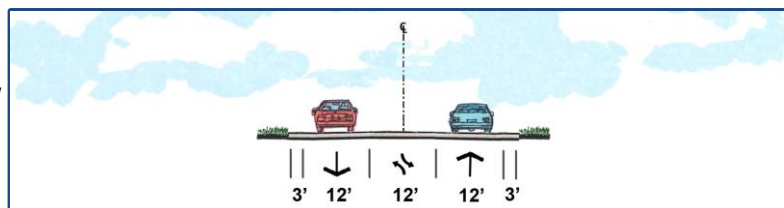
No

☒

Operational Characteristics

	Existing	Future
Travel Lanes	2	2
V/C Ratio	0.64	0.83
Volume (vpd)	7,267	9,386
Capacity (vpd)	11,270	11,270
Crash Rate (crashes per million vehicle miles)	1.98	N/A
Truck Percentage	1.85%	0.01%

Recommended Future Roadway Cross-Section



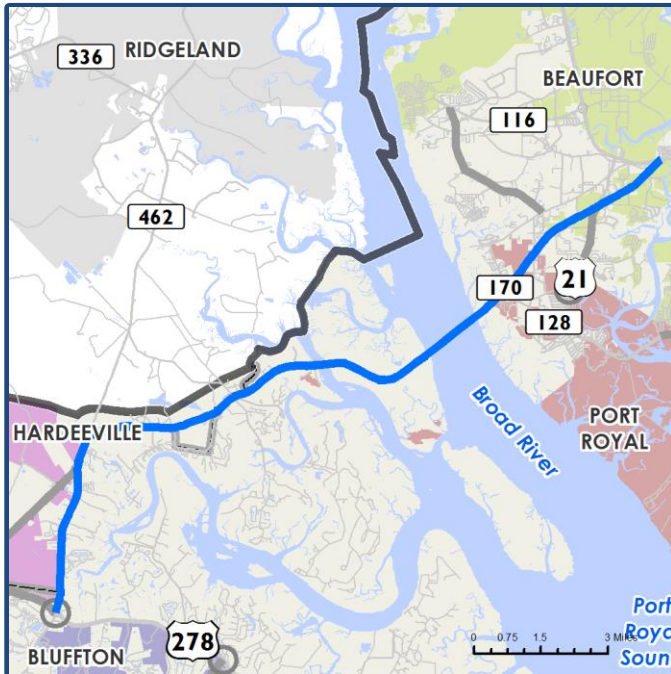
Environmental Impact Score

1 = low impact
5 = high impact

3



SC 170



Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	Wide Shoulder for Portions of Project	East Coast Greenway Route and Projects E&Y
Transit Service	Routes 302, 308, 309, 310, 311, 320	Additional Route Recommended

Is any portion of the project on a Hurricane Evacuation Route?

Yes ☐

No ☒

Recommended Future Roadway Cross-Section

*Recommended future roadway cross-section will vary over the length of this project.

Project Summary

ID	C-5
Type	ITS / Access Management
Length	19.34 miles
Estimated Cost	\$34,810,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

ITS and access management improvements are proposed along 20 miles of SC 170 from US 278 to US 21 Business. This project will mitigate congestion and promote multimodal integration. With improvements to the Broad River bridge, it also addresses barriers to mobility. A vision for this project has been identified in the Civic Master Plan and the Boundary Street Master Plan. As a future phase, a separated shared use path including a section parallel to the Broad River Bridge should be considered as part of the permanent route for the East Coast Greenway.

Operational Characteristics

	Existing	Future
Travel Lanes	4	4
V/C Ratio	0.31	1.25
Volume (vpd)	11,906	48,155
Capacity (vpd)	38,640	38,640
Crash Rate (crashes per million vehicle miles)	1.81	N/A
Truck Percentage	0.05%	0.06%

Environmental Impact Score

1 = low impact
5 = high impact

3



NEW LOCATION

Project Summary

ID	C-6
Type	New Location
Length	0.41 miles
Estimated Cost	\$1,360,000 (in 2015 dollars)
Cost Band	2020-2024

Project Description

A new two-lane roadway is proposed from Myrtle Street to Reynolds Street in Beaufort. This project will mitigate congestion, enhance livability, and address barriers to mobility.



Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	Sidewalk on one side
Transit Service	None	None

Is any portion of the project on a Hurricane Evacuation Route?

Yes

☐

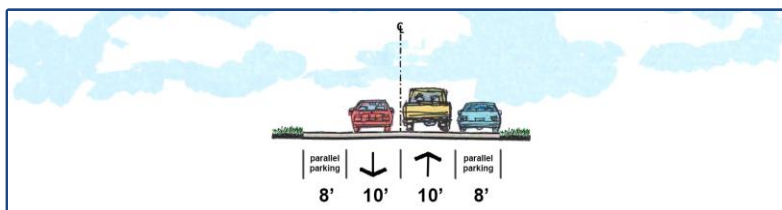
No

☒

Operational Characteristics

	Existing	Future
Travel Lanes	N/A	2
V/C Ratio	N/A	0.47
Volume (vpd)	N/A	8,354
Capacity (vpd)	N/A	17,700
Crash Rate (crashes per million vehicle miles)	N/A	N/A
Truck Percentage	N/A	0.96%

Recommended Future Roadway Cross-Section



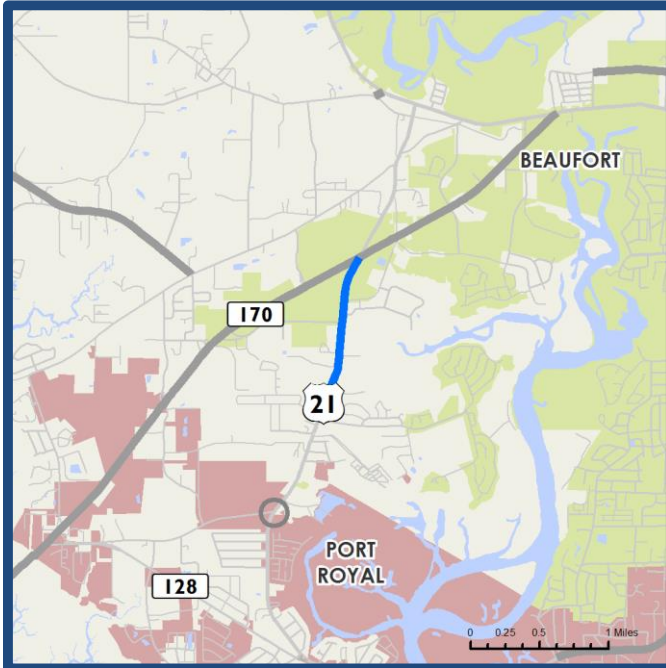
Environmental Impact Score

1 = low impact
5 = high impact

5



US 21



Project Summary

ID	C-7
Type	ITS / Access Management
Length	1.22 miles
Estimated Cost	\$1,820,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

ITS and access management improvements are proposed along US 21 from Mink Point Boulevard to SC 170. This project will mitigate congestion, promote multimodal integration, and enhance livability by improving access to Beaufort.

Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	Sidewalk along portions of the project	Recommended Improvement Project D
Transit Service	None	No Change

Is any portion of the project on a Hurricane Evacuation Route?

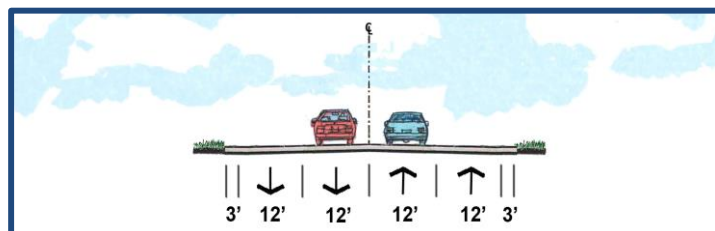
Yes ☐

No ☒

Operational Characteristics

	Existing	Future
Travel Lanes	4	4
V/C Ratio	0.35	0.66
Volume (vpd)	13,534	25,692
Capacity (vpd)	38,640	38,640
Crash Rate (crashes per million vehicle miles)	4.05	N/A
Truck Percentage	0.08%	0.19%

Recommended Future Roadway Cross-Section



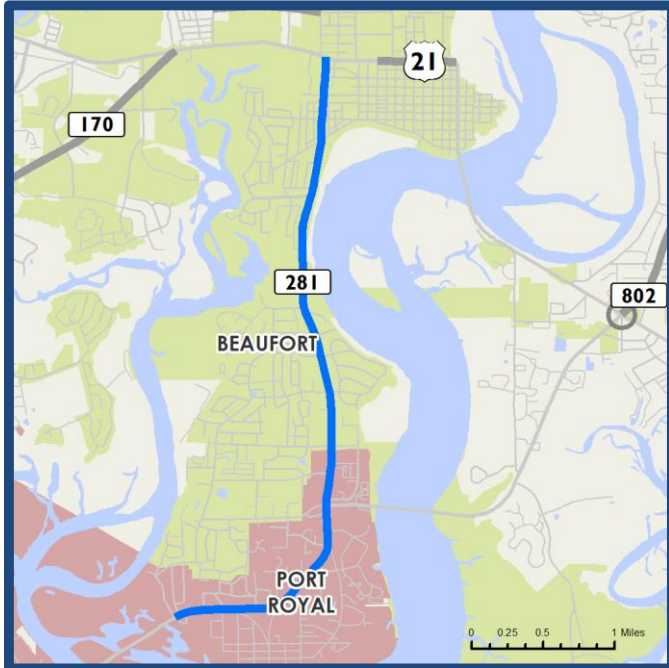
Environmental Impact Score

1 = low impact
5 = high impact

3



RIBAUT ROAD



Project Summary

ID	C-8
Type	ITS / Access Management
Length	4.77 miles
Estimated Cost	\$7,150,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

ITS and access management improvements are proposed in Beaufort and Port Royal along 4 miles of Ribaut Road from Lenora Road to US 21 Business. This project will mitigate congestion, involve environmental stewardship, and facilitate multimodal integration. The future attributes of this roadway have been studied as part of the Civic Master Plan.

Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	Recommended Improvement Project D
Transit Service	None	No Change

Is any portion of the project on a Hurricane Evacuation Route?

Yes ☐

No ☒

Operational Characteristics

	Existing	Future
Travel Lanes	4	4
V/C Ratio	0.28	0.47
Volume (vpd)	8,103	13,287
Capacity (vpd)	28,520	28,500
Crash Rate (crashes per million vehicle miles)	3.74	N/A
Truck Percentage	0.09%	0.06%

Recommended Future Roadway Cross-Section

*Recommended future roadway cross-section will vary over the length of this project.

Environmental Impact Score

1 = low impact
5 = high impact

1



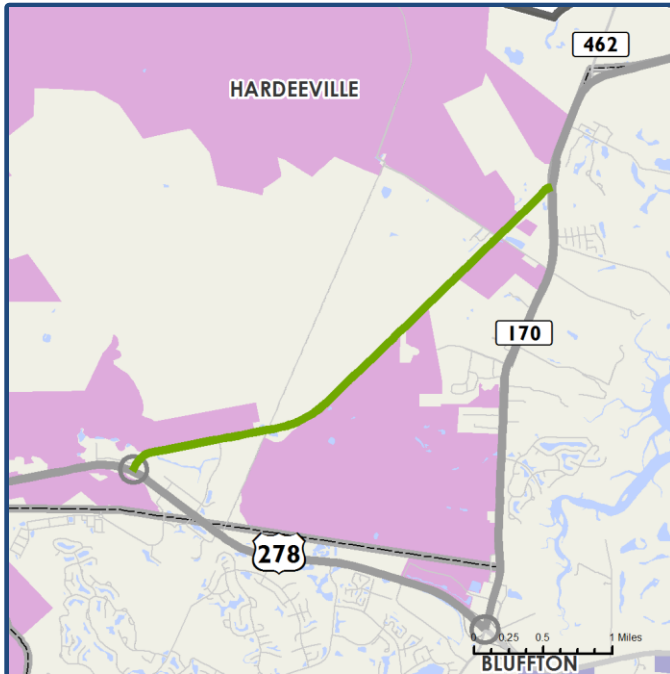
ARGENT BOULEVARD

Project Summary

ID	C-9
Type	Roadway Widening
Length	4.13 miles
Estimated Cost	\$15,950,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

Argent Boulevard is proposed to be widened from 2 lanes to 4 lanes from US 278 to SC 170. This project will mitigate congestion and promote multimodal integration in Hardeeville.



Multimodal Characteristics

	Existing	Future
Transit Service	None	Recommended Improvement Project D, Recommended East Coast Greenway Route
	None	No Change

Is any portion of the project on a Hurricane Evacuation Route?

Yes

☐

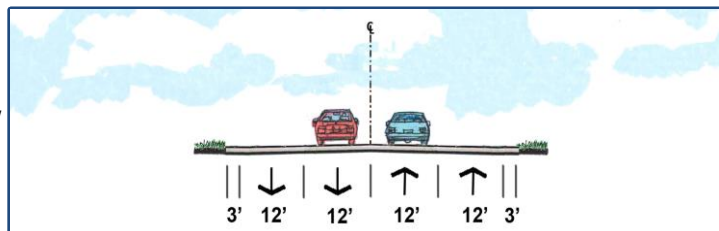
No

☒

Operational Characteristics

	Existing	Future
Travel Lanes	2	4
V/C Ratio	0.62	0.99
Volume (vpd)	6,934	21,878
Capacity (vpd)	11,270	22,770
Crash Rate (crashes per million vehicle miles)	1.32	N/A
Truck Percentage	0.01%	0.30%

Recommended Future Roadway Cross-Section



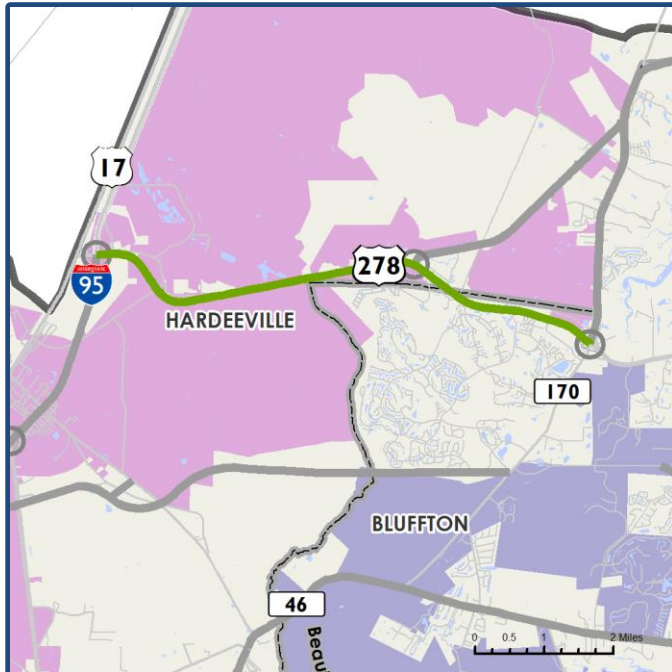
Environmental Impact Score

1 = low impact
5 = high impact

3



US 278



Project Summary

ID	C-10
Type	Roadway Widening
Length	7.85 miles
Estimated Cost	\$45,500,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

US 278 is proposed to be widened from 4 lanes to 6 lanes from Interstate 95 to Argent Boulevard in Hardeeville. This project will mitigate congestion and promote multimodal integration.

Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	East Coast Greenway Route and Project A
Transit Service	Routes 302, 308, 309, 310, 311, 320	Additional Route Recommended

Is any portion of the project on a Hurricane Evacuation Route?

Yes

☐

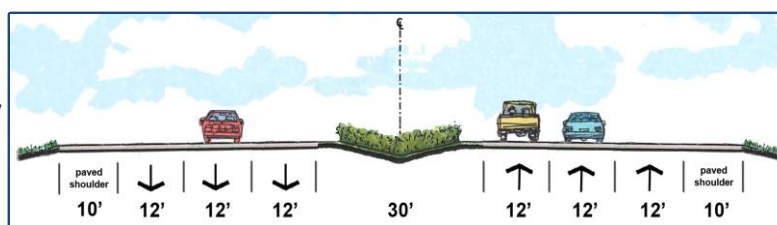
No

☒

Operational Characteristics

	Existing	Future
Travel Lanes	4	6
V/C Ratio	0.70	1.18
Volume (vpd)	26,927	45,529
Capacity (vpd)	38,640	38,640
Crash Rate (crashes per million vehicle miles)	0.54	N/A
Truck Percentage	0.08%	0.98%

Recommended Future Roadway Cross-Section



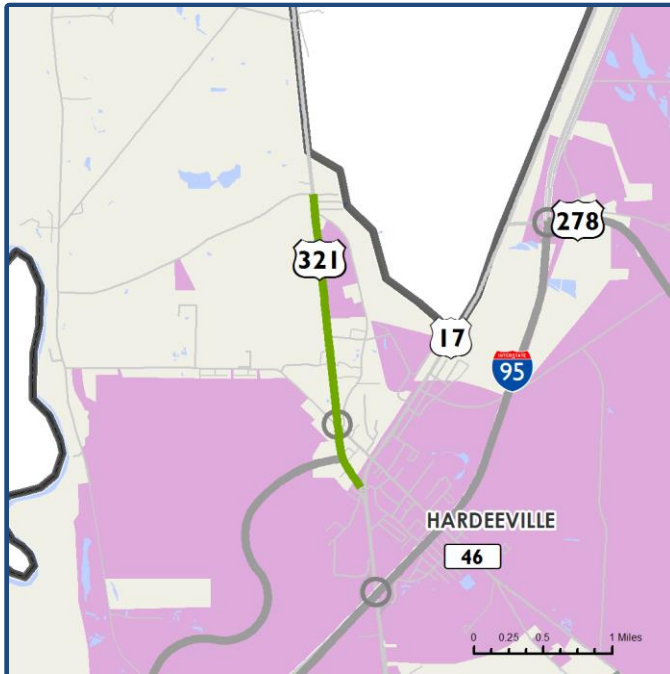
Environmental Impact Score

1 = low impact
5 = high impact

3



US 321



Project Summary

ID	C-11
Type	Roadway Widening
Length	2.17 miles
Estimated Cost	\$7,310,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

US 321 is proposed to be widened from 2 lanes to 4 lanes from US 17 to Honey Hill Road. This project will mitigate congestion and promote environmental stewardship. It will also address barriers to mobility by increasing the capacity of a hurricane evacuation route.

Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	No Change
Transit Service	Route 307	No Change

Is any portion of the project on a Hurricane Evacuation Route?

Yes



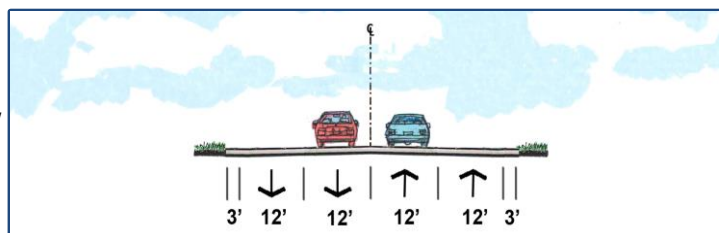
No



Operational Characteristics

	Existing	Future
Travel Lanes	2	4
V/C Ratio	0.43	0.63
Volume (vpd)	5,279	7,805
Capacity (vpd)	12,420	12,420
Crash Rate (crashes per million vehicle miles)	1.35	N/A
Truck Percentage	1.24%	1.17%

Recommended Future Roadway Cross-Section



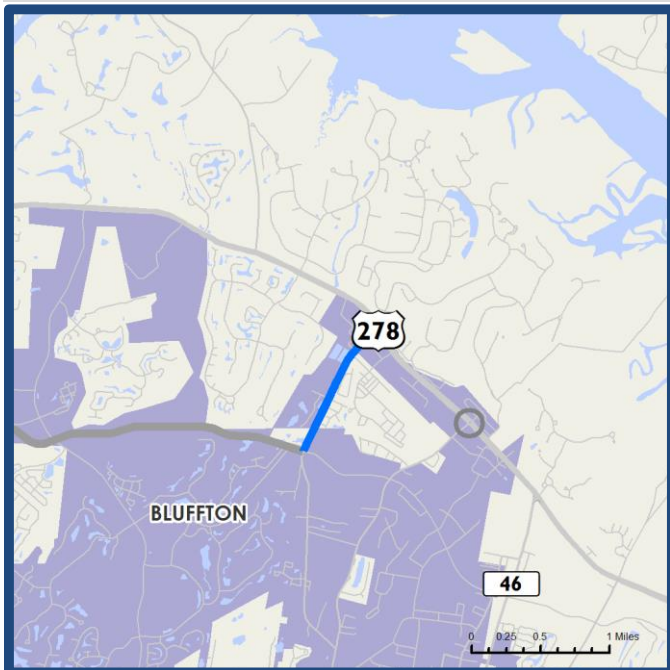
Environmental Impact Score

1 = low impact
5 = high impact

1



BUCK ISLAND ROAD



Project Summary

ID	C-12
Type	ITS / Access Management
Length	1.06 miles
Estimated Cost	\$2,120,000 (in 2015 dollars)
Cost Band	2025-2040

Project Description

ITS and access management improvements are proposed along Buck Island Road from the Bluffton Parkway to US 278. This project will mitigate congestion, promote multimodal integration, and exhibit environmental stewardship.

Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	Planned Bike Lane (Buck Island Rd)
Transit Service	None	No Change

Is any portion of the project on a Hurricane Evacuation Route?

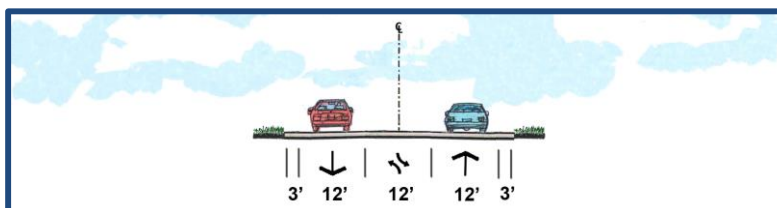
Yes ☐

No ☒

Operational Characteristics

	Existing	Future
Travel Lanes	2	2
V/C Ratio	0.45	0.68
Volume (vpd)	5,095	7,639
Capacity (vpd)	11,270	11,270
Crash Rate (crashes per million vehicle miles)	6.09	N/A
Truck Percentage	0.26%	1.85%

Recommended Future Roadway Cross-Section



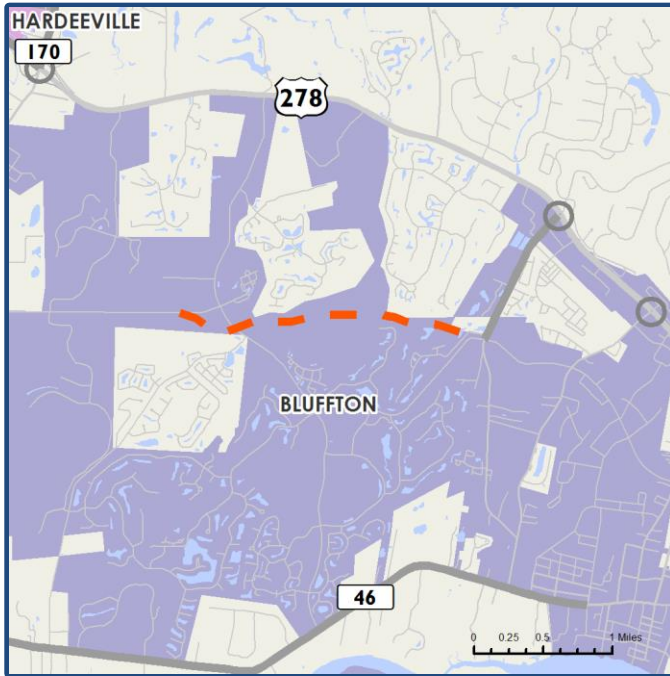
Environmental Impact Score

1 = low impact
5 = high impact

1



BLUFFTON PARKWAY



Project Summary

ID	C-13
Type	New Location
Length	2.30 miles
Estimated Cost	\$13,600,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

A four-lane extension of Bluffton Parkway is proposed from Buckwalter Parkway to Buck Island Road in Bluffton. This project will address barriers to mobility and promote multimodal integration.

Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	Planned Trail along New Location
Transit Service	None	None

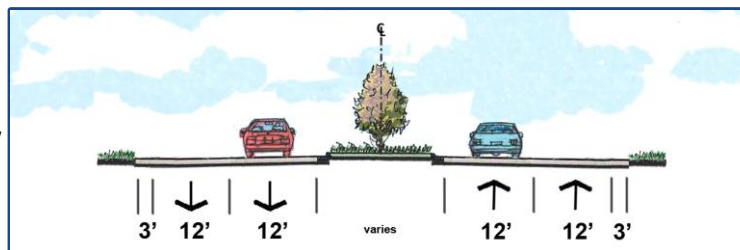
Is any portion of the project on a Hurricane Evacuation Route?



Operational Characteristics

	Existing	Future
Travel Lanes	N/A	4
V/C Ratio	N/A	0.34
Volume (vpd)	N/A	13,668
Capacity (vpd)	N/A	39,800
Crash Rate (crashes per million vehicle miles)	N/A	N/A
Truck Percentage	N/A	0.65%

Recommended Future Roadway Cross-Section



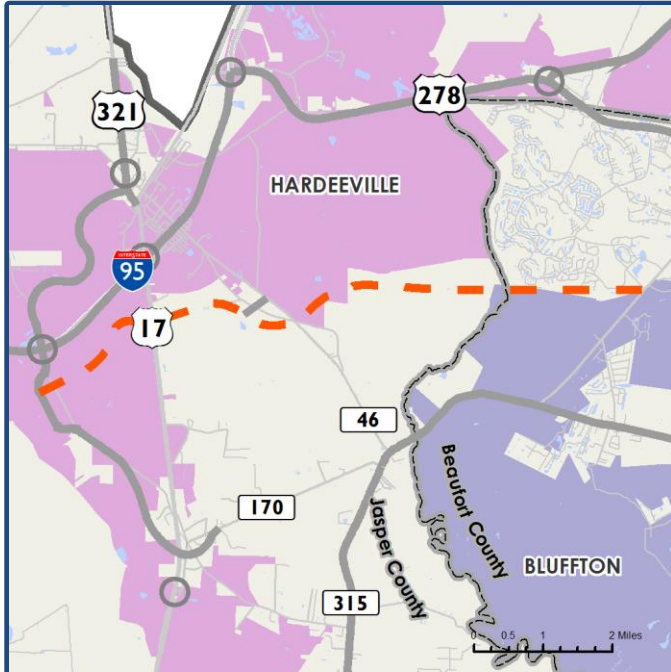
Environmental Impact Score

1 = low impact
5 = high impact

3



BLUFFTON PARKWAY



Project Summary

ID	C-14
Type	New Location
Length	9.52 miles
Estimated Cost	\$41,920,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

A four-lane extension of Bluffton Parkway is proposed for almost ten miles from Riverport Parkway to SC 170 in Bluffton. This project will mitigate congestion and address barriers to mobility.

Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	None
Transit Service	None	None

Is any portion of the project on a Hurricane Evacuation Route?

Yes

☐

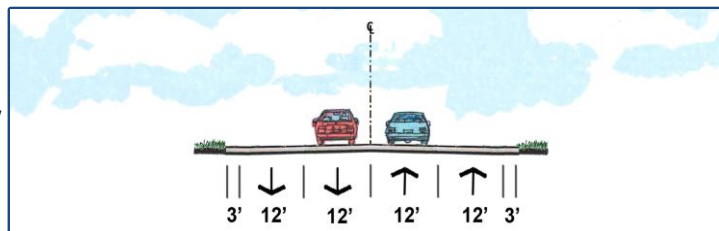
No

☒

Operational Characteristics

	Existing	Future
Travel Lanes	N/A	4
V/C Ratio	N/A	0.09
Volume (vpd)	N/A	3,527
Capacity (vpd)	N/A	39,800
Crash Rate (crashes per million vehicle miles)	N/A	N/A
Truck Percentage	N/A	0.64%

Recommended Future Roadway Cross-Section



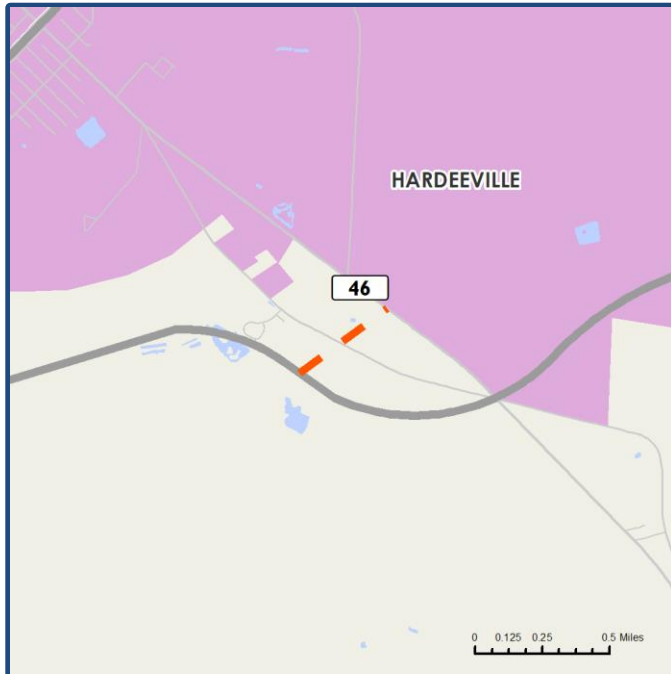
Environmental Impact Score

1 = low impact
5 = high impact

5



NEW LOCATION



Project Summary

ID	C-15
Type	New Location
Length	0.41 miles
Estimated Cost	\$1,810,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

A new four-lane roadway is proposed outside of Hardeeville from Bluffton Parkway to SC 46. This project will mitigate congestion and address barriers to mobility.

Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	None
Transit Service	None	None

Is any portion of the project on a Hurricane Evacuation Route?

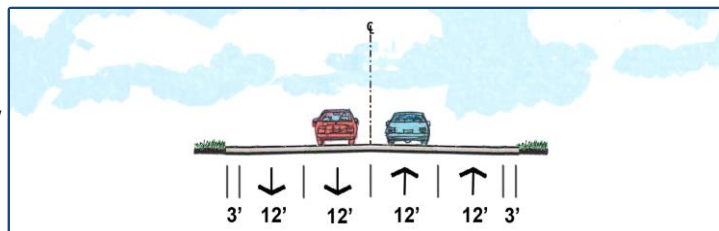
Yes ☐

No ☒

Operational Characteristics

	Existing	Future
Travel Lanes	N/A	4
V/C Ratio	N/A	0.07
Volume (vpd)	N/A	2,382
Capacity (vpd)	N/A	35,500
Crash Rate (crashes per million vehicle miles)	N/A	N/A
Truck Percentage	N/A	0.00%

Recommended Future Roadway Cross-Section



Environmental Impact Score

1 = low impact
5 = high impact

3



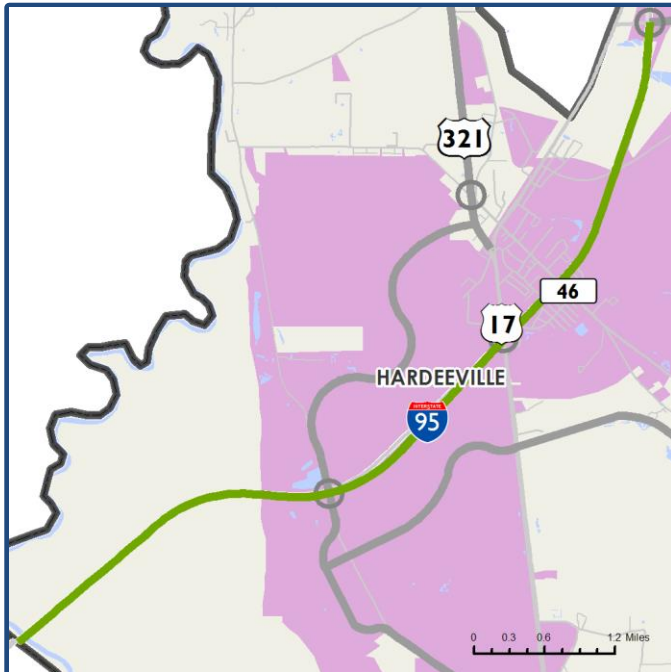
INTERSTATE 95

Project Summary

ID	C-16
Type	Roadway Widening
Length	8.16 miles
Estimated Cost	\$40,770,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

Interstate 95 from the Georgia line to US 278 is proposed to be widened from 4 lanes to 6 lanes in order to mitigate congestion. This project also promotes economic vitality and tourism by improving access into South Carolina from Georgia.



Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	No Change
Transit Service	Route 850	No Change

Is any portion of the project on a Hurricane Evacuation Route?

Yes



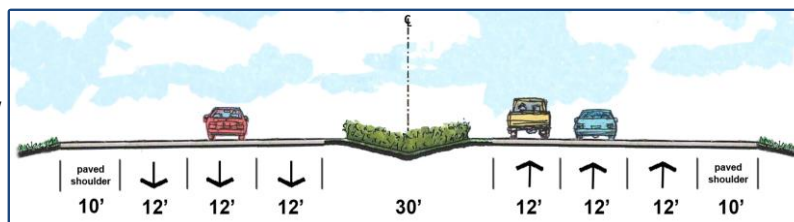
No



Operational Characteristics

	Existing	Future
Travel Lanes	4	6
V/C Ratio	0.72	1.14
Volume (vpd)	24,160	38,410
Capacity (vpd)	33,695	33,695
Crash Rate (crashes per million vehicle miles)	0.38	N/A
Truck Percentage	1.14%	0.93%

Recommended Future Roadway Cross-Section



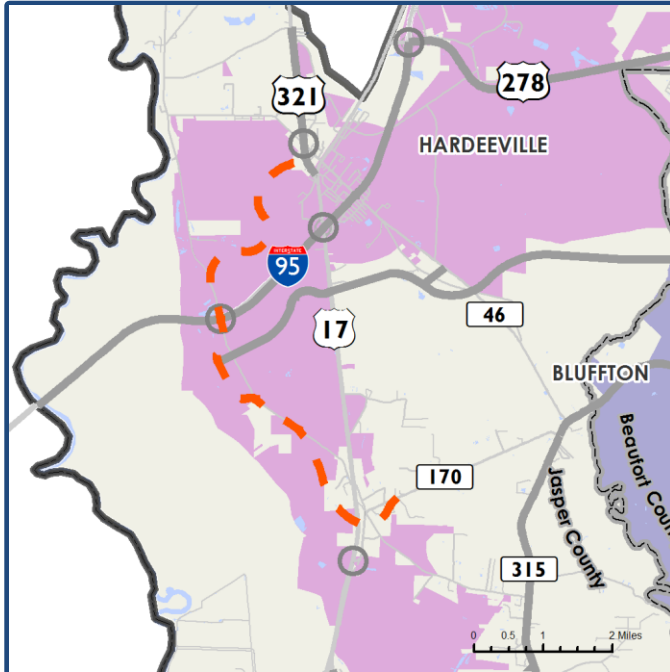
Environmental Impact Score

1 = low impact
5 = high impact

5



NEW LOCATION – RIVERPORT PARKWAY



Project Summary

ID	C-17
Type	New Location
Length	8.02 miles
Estimated Cost	\$46,620,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

A new four-lane roadway is proposed in Hardeeville to parallel US 17 from SC 170 to US 321. This project will mitigate congestion and address barriers to mobility. Approximately 1800 linear feet of the 4-lane divided roadway have been completed.

Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	None
Transit Service	None	None

Is any portion of the project on a Hurricane Evacuation Route?

Yes



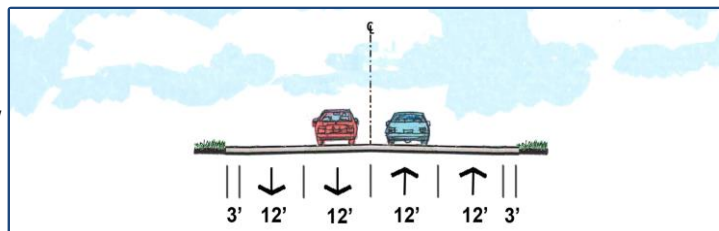
No



Operational Characteristics

	Existing	Future
Travel Lanes	N/A	4
V/C Ratio	N/A	0.22
Volume (vpd)	N/A	8,732
Capacity (vpd)	N/A	39,800
Crash Rate (crashes per million vehicle miles)	N/A	N/A
Truck Percentage	N/A	2.89%

Recommended Future Roadway Cross-Section



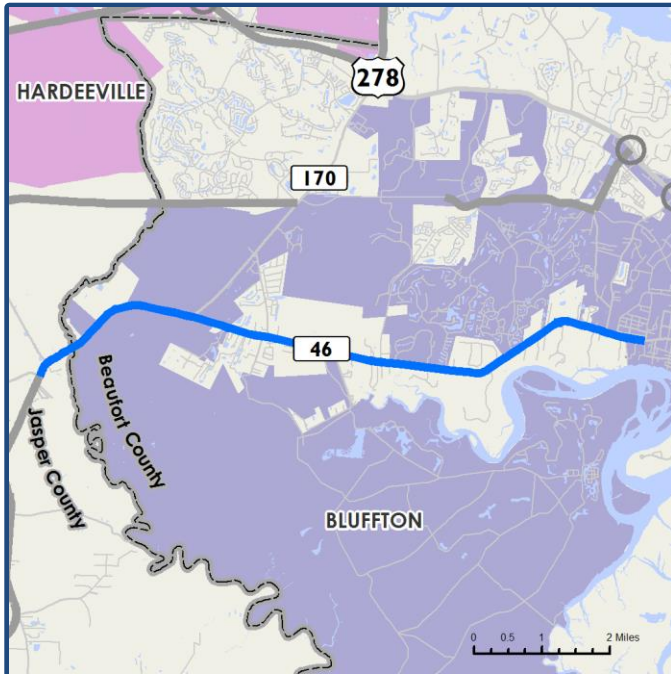
Environmental Impact Score

1 = low impact
5 = high impact

5



SC 315 / SC 46



Project Summary

ID	C-18
Type	ITS / Access Management
Length	9.74 miles
Estimated Cost	\$27,270,000 (in 2015 dollars)
Cost Band	2025-2040

Project Description

ITS and access management improvements are proposed along SC 315 / SC 46 from SC 170 to Pin Oak Street in Bluffton. This project will mitigate congestion, promote multimodal integration, and enhance livability by improving traffic management in downtown Bluffton.

Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	Recommended Improvement Project W
Transit Service	Route 307	No Change

Is any portion of the project on a Hurricane Evacuation Route?

Yes

☐

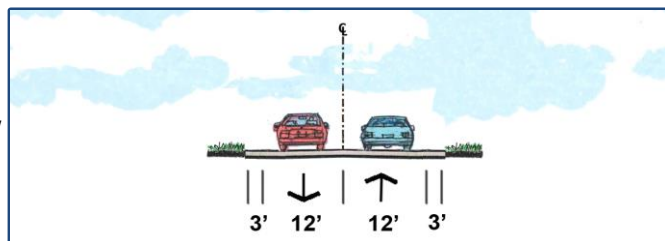
No

☒

Operational Characteristics

	Existing	Future
Travel Lanes	2	2
V/C Ratio	0.99	1.01
Volume (vpd)	12,271	12,521
Capacity (vpd)	12,420	12,420
Crash Rate (crashes per million vehicle miles)	0.95	N/A
Truck Percentage	0.05%	0.03%

Recommended Future Roadway Cross-Section



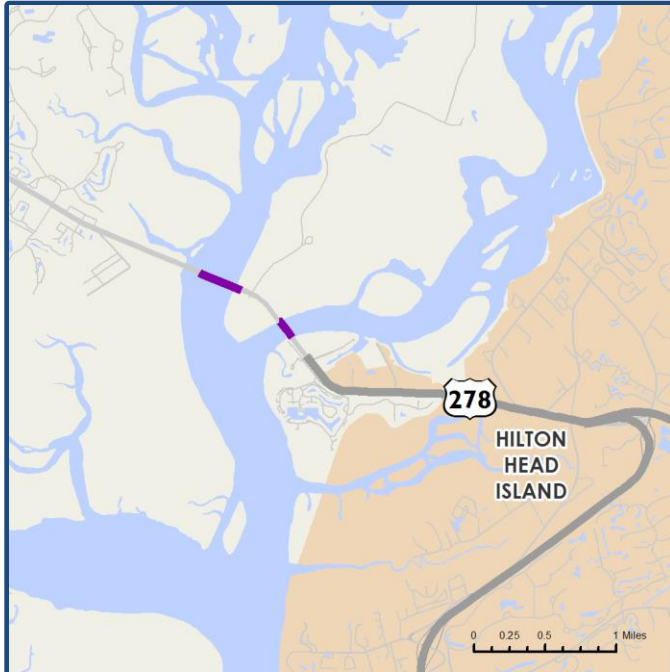
Environmental Impact Score

1 = low impact
5 = high impact

3



US 278



Project Summary

ID	C-19
Type	Bridge Widening
Length	0.47 miles
Estimated Cost	\$200,000,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

US 278 bridges over Mackay Creek and Skull Creek are proposed to be widened from 4 lanes to 6 lanes in order to mitigate congestion and address barriers to mobility. This project will also promote economic vitality and tourism by improving access to Hilton Head Island.

Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	Recommended Improvement Project N
Transit Service	Routes 302, 308, 309, 310, 311, 320	Additional Route Recommended

Is any portion of the project on a Hurricane Evacuation Route?

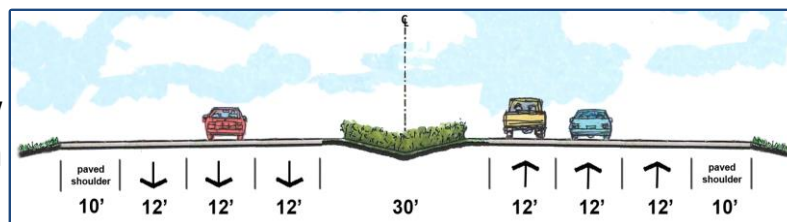
Yes ☐

No ☒

Operational Characteristics

	Existing	Future
Travel Lanes	4	6
V/C Ratio	1.27	1.45
Volume (vpd)	49,219	56,129
Capacity (vpd)	38,640	38,640
Crash Rate (crashes per million vehicle miles)	0.96	N/A
Truck Percentage	0.05%	0.04%

Recommended Future Roadway Cross-Section



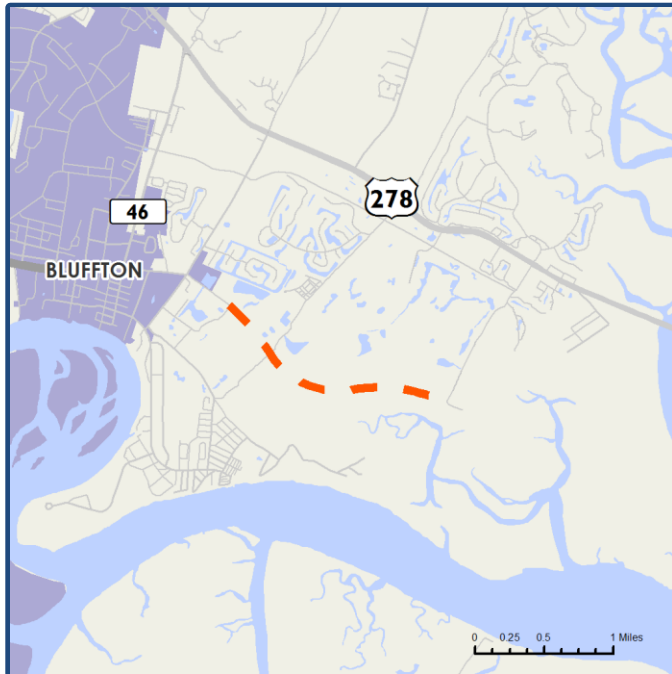
Environmental Impact Score

1 = low impact
5 = high impact

5



NEW LOCATION



Project Summary

ID	C-20
Type	New Location
Length	1.87 miles
Estimated Cost	\$3,500,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

A two-lane extension of Stroup Lane is proposed from Burnt Church Road to Buckingham Plantation Drive outside of Bluffton. This project will mitigate congestion, address barriers to mobility, and improve livability by providing additional access to the Town of Bluffton.

Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	None
Transit Service	None	None

Is any portion of the project on a Hurricane Evacuation Route?

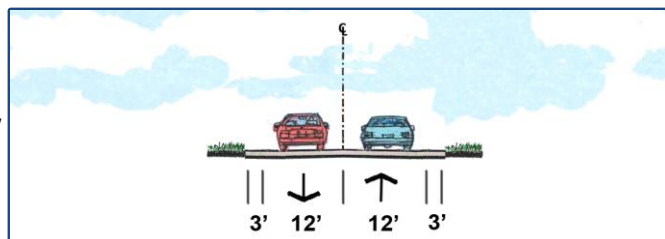
Yes ☐

No ☒

Operational Characteristics

	Existing	Future
Travel Lanes	N/A	2
V/C Ratio	N/A	0.06
Volume (vpd)	N/A	901
Capacity (vpd)	N/A	16,200
Crash Rate (crashes per million vehicle miles)	N/A	N/A
Truck Percentage	N/A	0.20%

Recommended Future Roadway Cross-Section



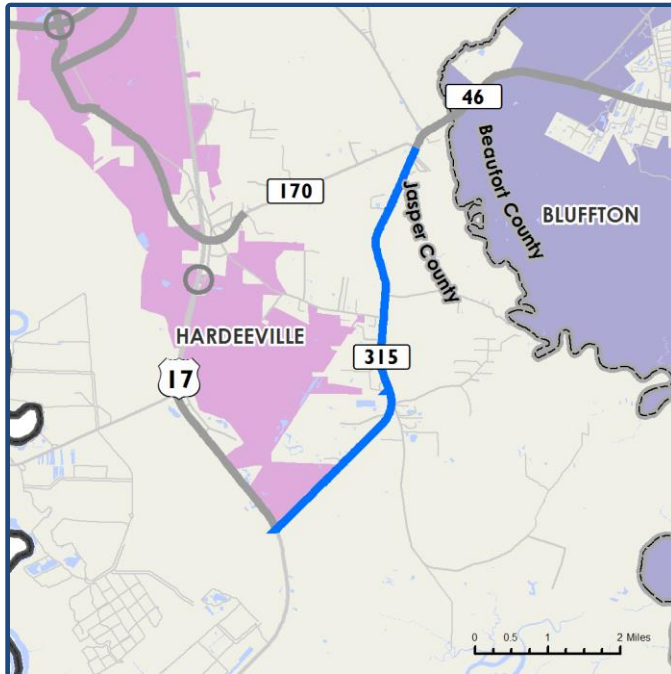
Environmental Impact Score

1 = low impact
5 = high impact

3



SC 315 / SC 46



Project Summary

ID	C-21
Type	ITS/Access Management
Length	6.10 miles
Estimated Cost	\$12,200,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

ITS and access management improvements are proposed along SC 315/ SC 46 from US 17 to SC 170. This project will mitigate congestion and facilitate multimodal integration. It will also promote economic vitality and tourism by improving access to Bluffton from US 17. This project is collocated with project C-23.

Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	Recommended Improvement Project BB
Transit Service	None	No Change

Is any portion of the project on a Hurricane Evacuation Route?

Yes



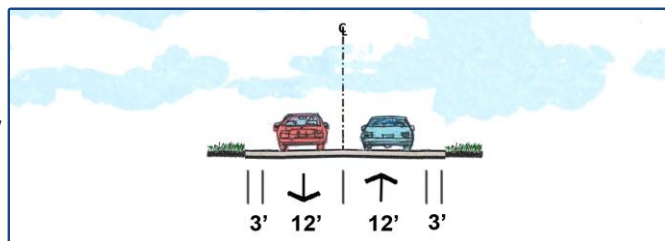
No



Operational Characteristics

	Existing	Future
Travel Lanes	2	2
V/C Ratio	0.83	1.36
Volume (vpd)	8,180	13,472
Capacity (vpd)	9,890	9,890
Crash Rate (crashes per million vehicle miles)	1.78	N/A
Truck Percentage	0.00%	0.00%

Recommended Future Roadway Cross-Section



Environmental Impact Score

1 = low impact
5 = high impact

3



US 278



Project Summary

ID	C-22
Type	ITS / Access Management
Length	16.73 miles
Estimated Cost	\$25,090,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

ITS and access management improvements are proposed along US 278 and US 278 Business on Hilton Head Island. This project will mitigate congestion and address barriers to mobility. It will also promote economic vitality and tourism by improving access to Hilton Head.

Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	Pathways along Portions of the Project	Recommended Improvement Projects N & V
Transit Service	Routes 302, 307, 308, 309, 310, 311, 320, 401, 503	Additional Route Recommended

Is any portion of the project on a Hurricane Evacuation Route?

Yes



No



Operational Characteristics

	Existing	Future
Travel Lanes	2	2
V/C Ratio	0.49	1.47
Volume (vpd)	8,469	28,375
Capacity (vpd)	17,250	19,320
Crash Rate (crashes per million vehicle miles)	4.06	N/A
Truck Percentage	0.00%	0.00%

Recommended Future Roadway Cross-Section

*Recommended future roadway cross-section will vary over the length of this project.

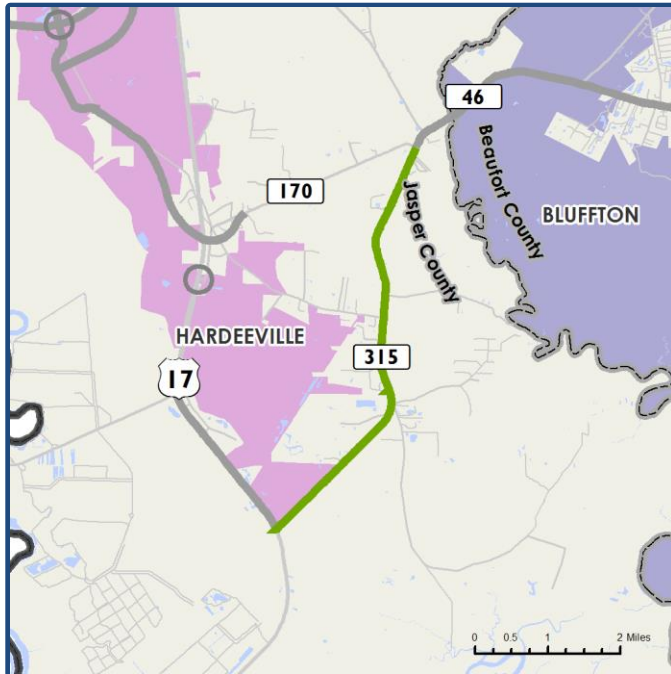
Environmental Impact Score

1 = low impact
5 = high impact

3



SC 315 / SC 46



Project Summary

ID	C-23
Type	Roadway Widening
Length	6.10 miles
Estimated Cost	\$25,400,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

SC 315 / SC 46 is proposed to be widened from US 17 to SC 170 from 2 lanes to a 4 lane divided highway in order to mitigate congestion. This project will also promote economic vitality and tourism by improving access to Bluffton from US 17. This project is collocated with project C-21.

Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	Recommended Improvement Project BB
Transit Service	None	No Change

Is any portion of the project on a Hurricane Evacuation Route?

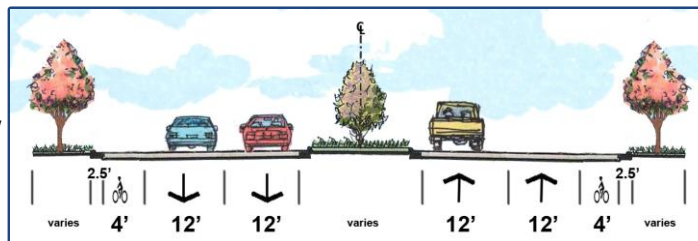
Yes ☐

No ☒

Operational Characteristics

	Existing	Future
Travel Lanes	2	4
V/C Ratio	0.83	0.36
Volume (vpd)	8,180	13,742
Capacity (vpd)	9,890	38,640
Crash Rate (crashes per million vehicle miles)	1.78	N/A
Truck Percentage	1.27%	0.49%

Recommended Future Roadway Cross-Section



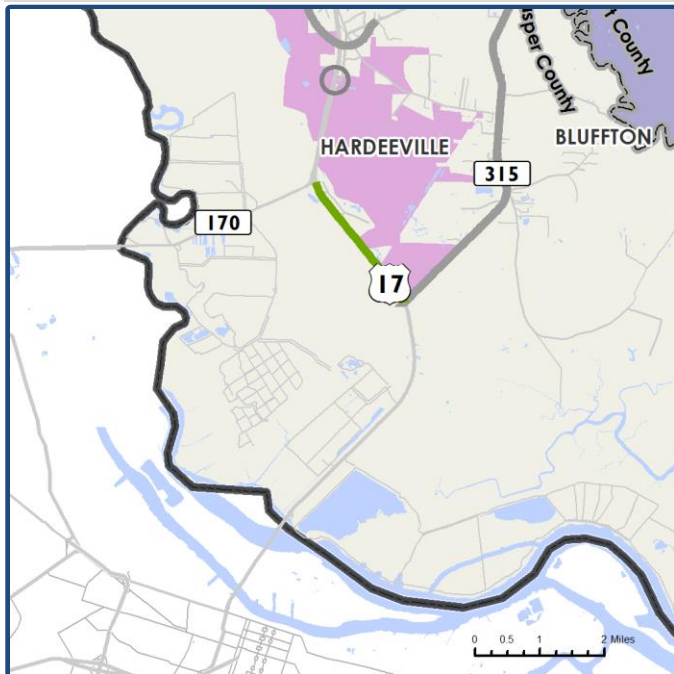
Environmental Impact Score

1 = low impact
5 = high impact

3



US 17



Project Summary

ID	C-24
Type	Roadway Widening
Length	2.4 miles
Estimated Cost	\$9,990,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

US 17 is proposed to be widened from 2 lanes to 4 lanes from SC 315 to SC 170 in order to enhance economic vitality and tourism. This project will also promote multimodal integration. A project to improve US 17 from SC 170 to the Georgia state line is currently included in the LATs 2015-2019 TIP. A future phase should be considered to provide a shared-use boardwalk facility.

Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	Recommended East Coast Greenway Route and Project W
Transit Service	None	No Change

Is any portion of the project on a Hurricane Evacuation Route?

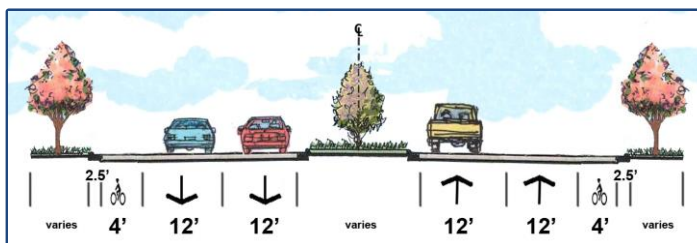
Yes ☐

No ☒

Operational Characteristics

	Existing	Future
Travel Lanes	2	4
V/C Ratio	0.30	0.28
Volume (vpd)	5,120	10,896
Capacity (vpd)	16,790	38,640
Crash Rate (crashes per million vehicle miles)	0.69	N/A
Truck Percentage	1.30%	0.79%

Recommended Future Roadway Cross-Section



Environmental Impact Score

1 = low impact
5 = high impact

5



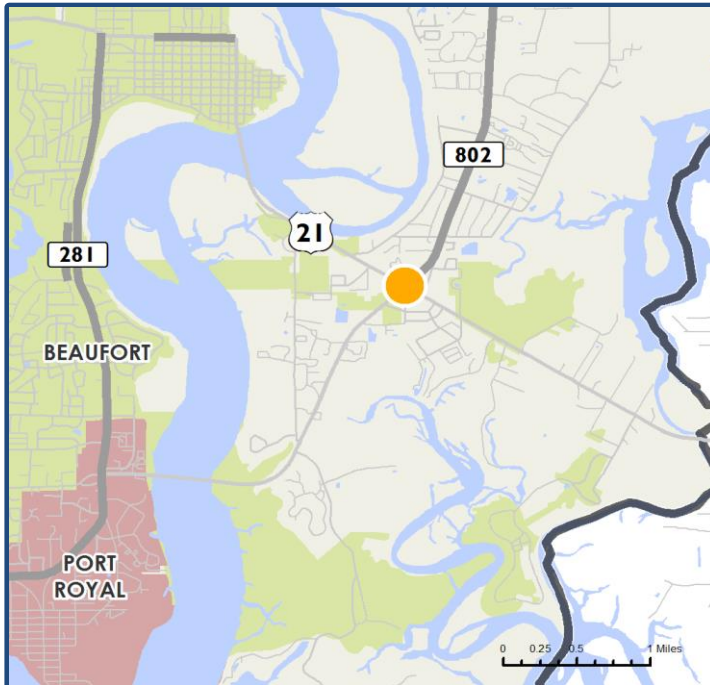
US 21 & SC 802

Project Summary

ID	S-2
Type	Intersection
Estimated Cost	\$900,000 (in 2015 dollars)
Cost Band	2020-2024

Project Description

Intersection improvements are proposed by the US 21 - SC 802 Connector Traffic Study at US 21 and SC 802. This project will facilitate multimodal integration, address barriers to mobility, and enhance livability in Beaufort. Improvements at this location should be coordinated with project C-1. Improvements at this location could also consider the creation of nearby alternative routes to reduce the number of vehicles using this intersection.



Is any portion of the project on a Hurricane Evacuation Route?

Yes



No



Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	Existing Bike Trails (Lady's Island Drive and Sea Island Pkwy)	Recommended Improvement Project F
Transit Service	None	No Change

Operational Characteristics

	Existing	Future
Travel Lanes (N-S)	4	4
Travel Lanes (E-W)	4	4
V/C Ratio	0.50	0.58
Volume (vpd)	30,475	42,169
Capacity (vpd)	61,295	72,220
Crash Rate (per million entering vehicles)	0.84	N/A
Truck Percentage	0.39%	0.41%



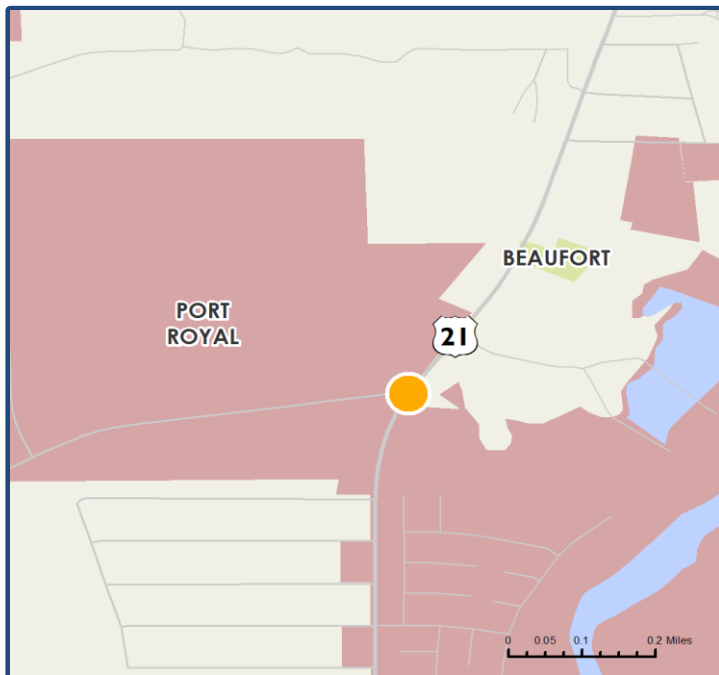
US 21 & S-7-23

Project Summary

ID	S-3
Type	Intersection
Estimated Cost	\$2,000,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

Intersection improvements are proposed at US 21 and S-7-23 in Port Royal. This project will mitigate congestion, facilitate multimodal integration, and enhance livability.



Is any portion of the project on a Hurricane Evacuation Route?

Yes

☐

No

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Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	Recommended Improvement Project D
Transit Service	None	No Change

Operational Characteristics

	Existing	Future
Travel Lanes (N-S)	4	4
Travel Lanes (E-W)	2	2
V/C Ratio	0.46	0.78
Volume (vpd)	20,056	34,103
Capacity (vpd)	43,585	43,585
Crash Rate (per million entering vehicles)	0.18	N/A
Truck Percentage	0.33%	0.27%



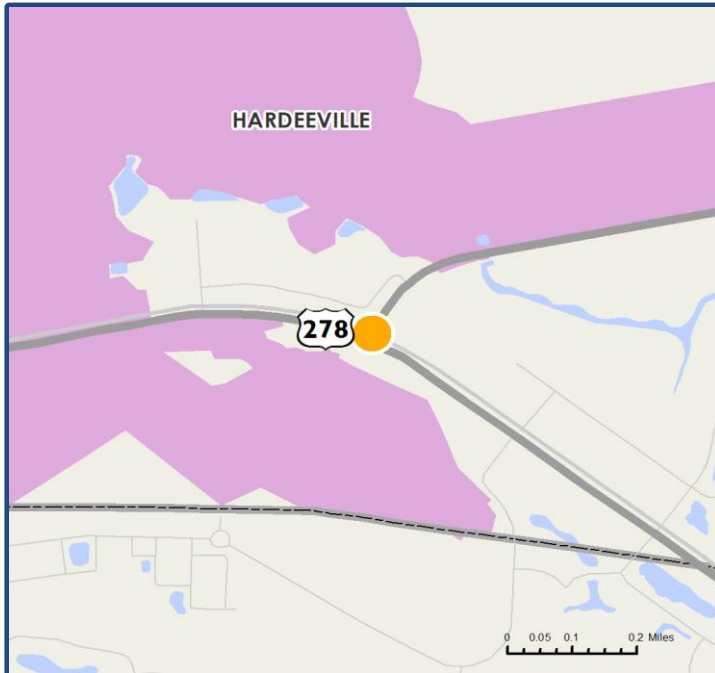
US 278 & ARGENT BLVD

Project Summary

ID	S-4
Type	Intersection
Estimated Cost	\$900,000 (in 2015 dollars)
Cost Band	2020-2024

Project Description

Intersection improvements are proposed at US 278 and Argent Boulevard near Hardeeville. This project will mitigate congestion, involve multimodal integration, and address barriers to mobility. At this time a roadway safety audit is being prepared for US 278. Final recommendations for this intersection will defer to the results of this study.



Is any portion of the project on a Hurricane Evacuation Route?

Yes



No



Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	Recommended East Coast Greenway Route and Project A
Transit Service	None	No Change

Operational Characteristics

	Existing	Future
Travel Lanes (N-S)	2	2
Travel Lanes (E-W)	4	4
V/C Ratio	0.64	1.09
Volume (vpd)	12,320	48,188
Capacity (vpd)	19,320	44,275
Crash Rate (per million entering vehicles)	1.26	N/A
Truck Percentage	9.65%	3.46%



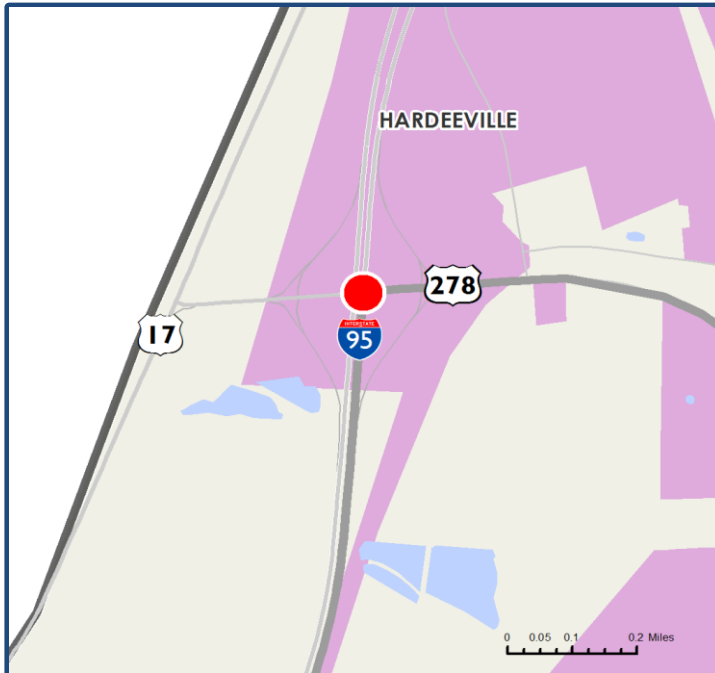
I-95 & US 278

Project Summary

ID	S-5
Type	Interchange
Estimated Cost	\$40,000,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

Interchange improvements are proposed by the Hardeeville 2009 Comprehensive Plan at Interstate 95 and US 278. This project will support multimodal integration, involve environmental stewardship, and address barriers to mobility. At this time there is a traffic study currently underway and the final recommendations will defer to the results of the study.



Is any portion of the project on a Hurricane Evacuation Route?

Yes



No



Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	Recommended Improvement Project A
Transit Service	850, 851	No Change

Operational Characteristics

	Existing	Future
Travel Lanes (N-S)	2	2
Travel Lanes (E-W)	4	4
V/C Ratio	0.37	0.69
Volume (vpd)	33,154	65,645
Capacity (vpd)	89,470	94,530
Crash Rate (per million entering vehicles)	0.00	N/A
Truck Percentage	4.51%	6.47%



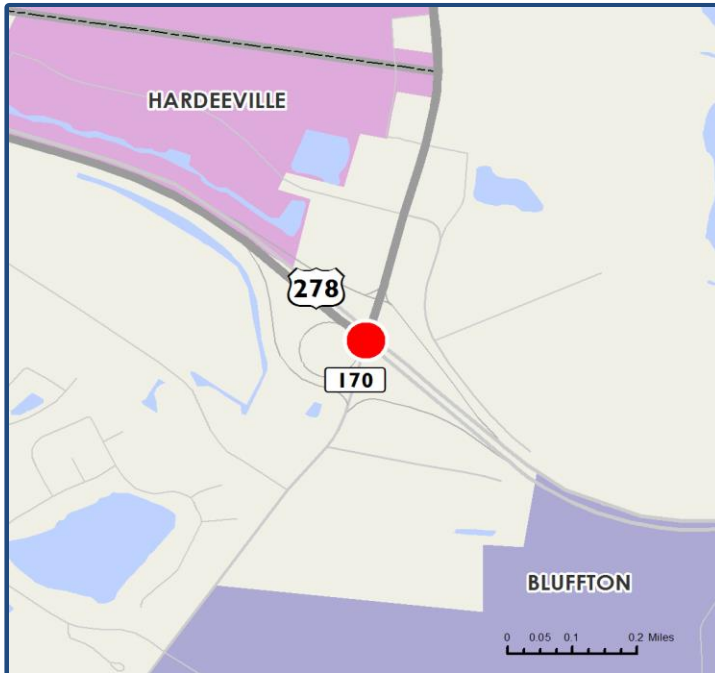
US 278 & SC 170

Project Summary

ID	S-6
Type	Interchange
Estimated Cost	\$40,000,000 (in 2015 dollars)
Cost Band	2025-2040

Project Description

Interchange improvements are proposed at US 278 and SC 170 between Hardeeville and Bluffton. This project will mitigate congestion, involve multimodal integration, and address barriers to mobility.



Is any portion of the project on a Hurricane Evacuation Route?

Yes



No



Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	Recommended Improvement Projects A & Y
Transit Service	302, 308, 309, 310, 311, 320	Additional Route Recommended

Operational Characteristics

	Existing	Future
Travel Lanes (N-S)	4	4
Travel Lanes (E-W)	2	2
V/C Ratio	0.44	0.51
Volume (vpd)	41,153	47,786
Capacity (vpd)	94,530	94,530
Crash Rate (per million entering vehicles)	0.13	N/A
Truck Percentage	1.55%	1.45%



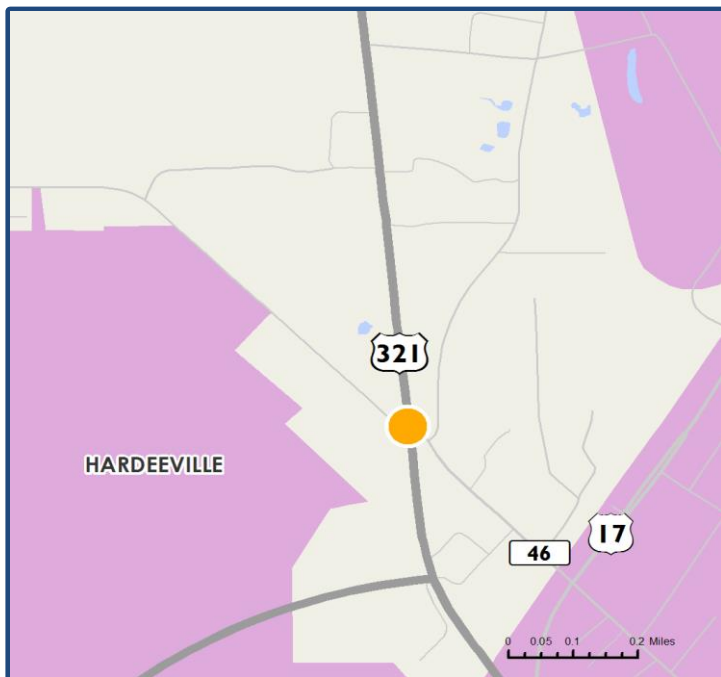
US 321 & SC 46

Project Summary

ID	S-7
Type	Intersection
Estimated Cost	\$900,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

Intersection improvements are proposed by the Town of Bluffton at US 321 and SC 46. This project will facilitate multimodal integration, involve environmental stewardship, and support economic vitality and tourism.



Is any portion of the project on a Hurricane Evacuation Route?

Yes



No



Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	No Change
Transit Service	307	No Change

Operational Characteristics

	Existing	Future
Travel Lanes (N-S)	2	2
Travel Lanes (E-W)	2	2
V/C Ratio	0.39	0.70
Volume (vpd)	8,689	15,581
Capacity (vpd)	22,310	22,310
Crash Rate (per million entering vehicles)	0.42	N/A
Truck Percentage	10.93%	8.90%



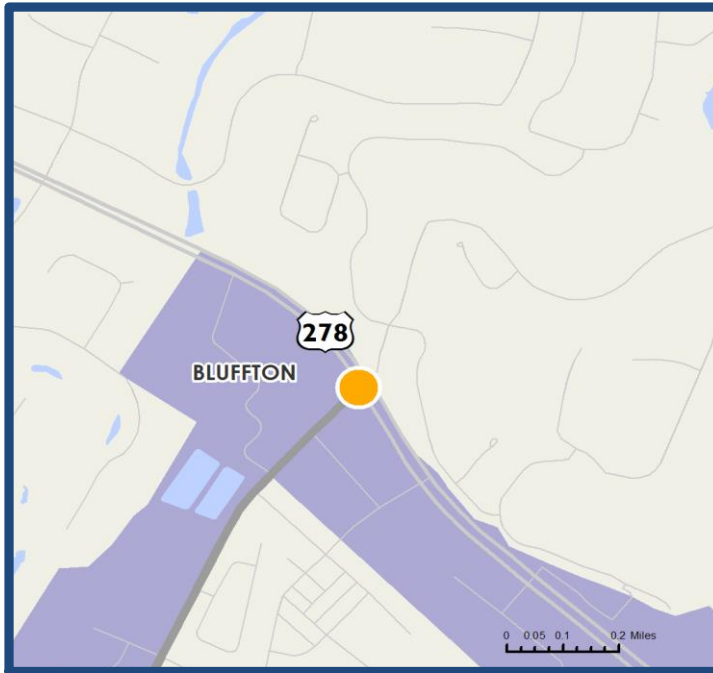
US 278 & BUCK ISLAND RD

Project Summary

ID	S-8
Type	Intersection
Estimated Cost	\$900,000 (in 2015 dollars)
Cost Band	2020-2024

Project Description

Interchange improvements are proposed at US 278 and Buck Island Road in Bluffton. This project will mitigate congestion, involve multimodal integration, and address barriers to mobility. At this time a roadway safety audit is being prepared for US 278. Final recommendations for this intersection will defer to the results of that study.



Is any portion of the project on a Hurricane Evacuation Route?

Yes



No



Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	Planned Bike Lane and Project X
Transit Service	302, 308, 309, 310, 311, 320	Additional Route Recommended

Operational Characteristics

	Existing	Future
Travel Lanes (N-S)	4	6
Travel Lanes (E-W)	2	2
V/C Ratio	0.93	0.97
Volume (vpd)	41,000	61,632
Capacity (vpd)	44,275	63,595
Crash Rate (per million entering vehicles)	0.47	N/A
Truck Percentage	2.51%	1.98%



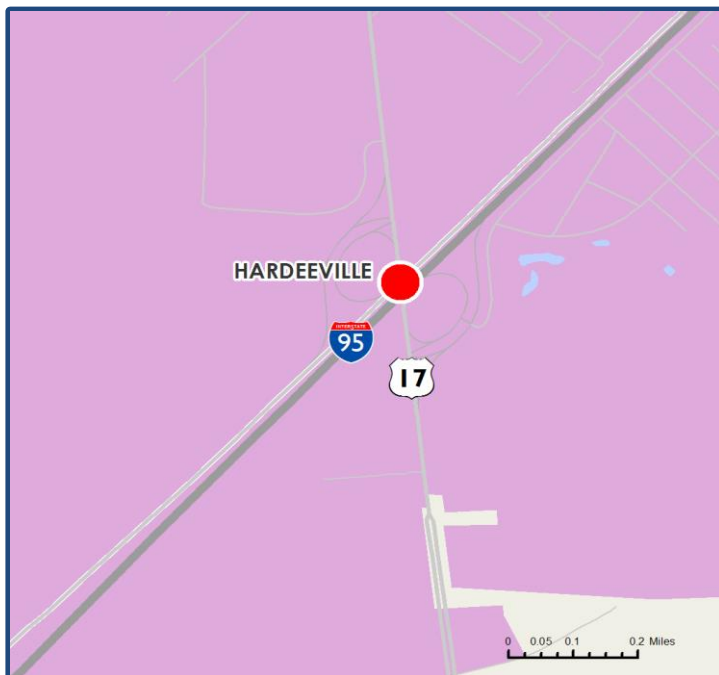
I-95 & US 17

Project Summary

ID	S-9
Type	Interchange
Estimated Cost	\$25,000,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

Interchange improvements are proposed by the Hardeeville 2009 Comprehensive Plan at Interstate 95 and US 17. This project will support multimodal integration along the East Coast Greenway and address barriers to mobility.



Is any portion of the project on a Hurricane Evacuation Route?

Yes



No



Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	Recommended East Coast Greenway Route and Project C
Transit Service	850, 851	Additional Route Recommended

Operational Characteristics

	Existing	Future
Travel Lanes (N-S)	4	2
Travel Lanes (E-W)	4	2
V/C Ratio	0.21	0.62
Volume (vpd)	13,392	46,625
Capacity (vpd)	65,090	75,670
Crash Rate (per million entering vehicles)	0.00	N/A
Truck Percentage	12.29%	10.47%



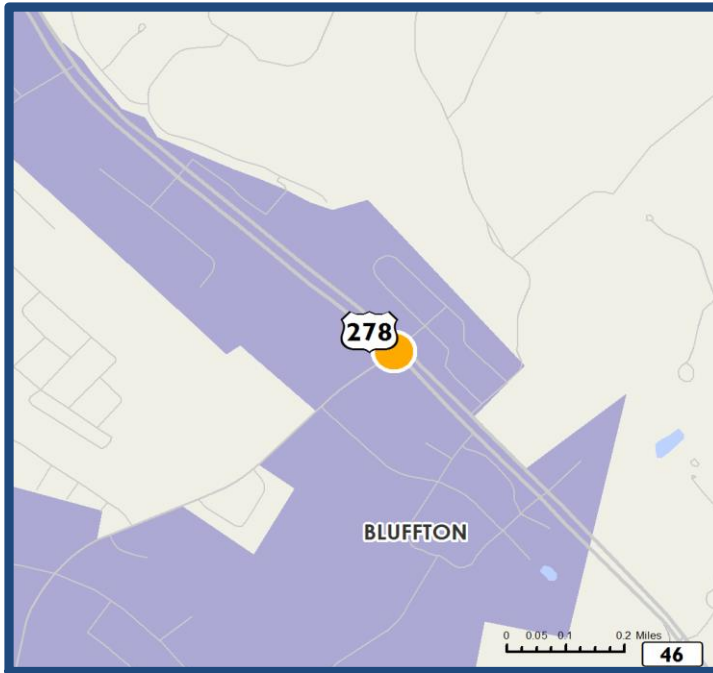
US 278 & S-7-474

Project Summary

ID	S-10
Type	Intersection
Estimated Cost	\$2,000,000 (in 2015 dollars)
Cost Band	2025-2040

Project Description

Intersection improvements are proposed at US 278 and S-7-474 (Simmons Road) in Bluffton. This project will mitigate congestion, involve multimodal integration, and address barriers to mobility.



Is any portion of the project on a Hurricane Evacuation Route?

Yes



No



Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	Existing Bike Lane (Simmons Road)	Recommended Improvement Project X
Transit Service	302, 308, 309, 310, 311, 320	Additional Route Recommended

Operational Characteristics

	Existing	Future
Travel Lanes (N-S)	4(N), 6(S)	6
Travel Lanes (E-W)	2	4
V/C Ratio	0.89	0.93
Volume (vpd)	48,212	64,541
Capacity (vpd)	53,935	69,230
Crash Rate (per million entering vehicles)	0.42	N/A
Truck Percentage	2.12%	1.79%



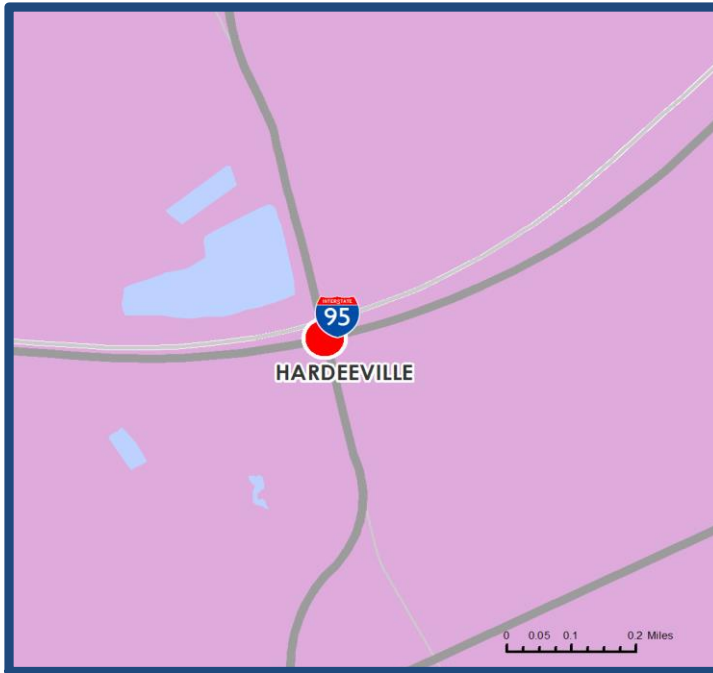
I-95 & RIVERPORT PKWY

Project Summary

ID	S-11
Type	Interchange
Estimated Cost	\$25,000,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

Interchange improvements are proposed by the Hardeeville 2009 Comprehensive Plan at Interstate 95 and Riverport Parkway. This project will mitigate congestion, support economic vitality and tourism, and address barriers to mobility. An environmental impact study is underway with the Army Corps of Engineers at this spot location.



Is any portion of the project on a Hurricane Evacuation Route?

Yes



No



Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	No Change
Transit Service	850, 851	No Change

Operational Characteristics

	Existing	Future
Travel Lanes (N-S)	N/A	N/A
Travel Lanes (E-W)	2	2
V/C Ratio	0.72	1.14
Volume (vpd)	24,192	38,410
Capacity (vpd)	33,695	33,695
Crash Rate (per million entering vehicles)	0.04	N/A
Truck Percentage	14.49%	12.72%



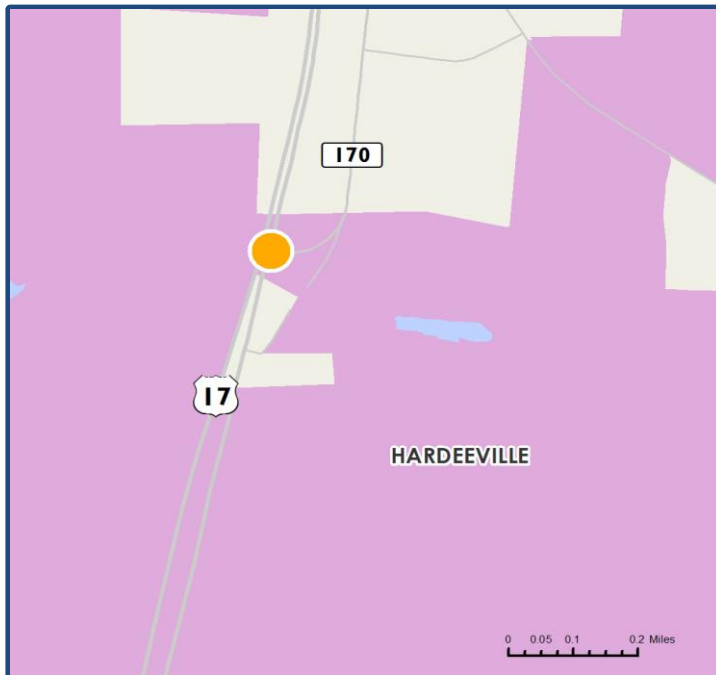
US 17 & SC 170

Project Summary

ID	S-12
Type	Intersection
Estimated Cost	\$900,000 (in 2015 dollars)
Cost Band	Unfunded Vision

Project Description

Intersection improvements are proposed at US 17 and SC 170 in Hardeeville. This project will facilitate multimodal integration, involve environmental stewardship, and enhance livability.



Is any portion of the project on a Hurricane Evacuation Route?

Yes

☐

No

☒

Multimodal Characteristics

	Existing	Future
Bike/Ped Facilities	None	Recommended East Coast Greenway Route and Projects C & W
Transit Service	None	No Change

Operational Characteristics

	Existing	Future
Travel Lanes (N-S)	4	4
Travel Lanes (E-W)	2	2
V/C Ratio	0.23	0.41
Volume (vpd)	9,078	16,464
Capacity (vpd)	39,925	39,790
Crash Rate (per million entering vehicles)	0.10	N/A
Truck Percentage	5.34%	3.86%

Appendix B | Corridors and Intersections

Introduction

Chapter 4 of the *2040 LATS Long Range Transportation Plan (2040 LATS LRTP)* describes roadway recommendations that aim to allocate limited resources to mitigate the region's most pressing transportation issues. The *2040 LATS LRTP* gives additional consideration for critical corridors and intersections selected by the Technical Committee. The intent is two-fold. First, more detail is provided for these critical locations to advance the conversation beyond the planning-level strategies shown for other recommendations. Second, the additional detail at these locations shows how recommendations could be replicated at similar places throughout the region.

Access Management Corridors

Access Management Toolbox

Chapter 4 includes an access management toolbox with various ways to mitigate poor access management or position a corridor for adequate access management in the future. It is organized into four sections: site access treatments, median treatments, intersection and minor street treatments, and intelligent transportation systems.

Access management balances the through mobility of a corridor with access to adjacent property by controlling the "location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a roadway."¹ As defined by the Federal Highway Administration, access management preserves "the flow of traffic on the surrounding system in terms of safety, capacity, and speed." The process requires cooperation among a host of agencies and stakeholders, including state departments of transportation, local jurisdictions, and private land owners. Poor access management undermines an area's livability and economic vitality. These areas also have higher crash rates, greater congestion, and more spillover cut-through traffic on adjacent residential streets. Poor access management increases commute times, creates unsafe conditions, lowers fuel efficiency, and increases vehicle emissions.

Site Access	Median	Intersection and Minor Streets	Intelligent Transportation Systems
<ul style="list-style-type: none"> Improved On-Site Traffic Circulation Number of Driveways Driveway Placement/Relocation Cross-Access to Adjacent Sites 	<ul style="list-style-type: none"> Non-Traversable Median Median U-Turn Treatment Directional Cross (Left-Over Crossing) Left-Turn Storage Bays Offset Left-Turn Treatment 	<ul style="list-style-type: none"> Skip Marks (Dotted Line Markings) Intersection and Driveway Curb Radii Minor Street Approach Improvements 	<ul style="list-style-type: none"> Signalization Progression-Controlled Signal System Dynamic Message Signs (DMS) Emergency Vehicle Preemption

¹ Access Management Manual, Transportation Research Board, National Academy of Sciences, Washington DC, 2003

Strategic Corridors

At the January 29, 2015 Technical Committee meeting, five corridors were selected for a slightly more detailed review of existing conditions and potential solutions. The Technical Committee was asked to help refine the list of corridors and provide insight into the locations. The four corridors identified as strategic access management corridors included:

Ribaut Road – Boundary Street to Allison Road (Beaufort)

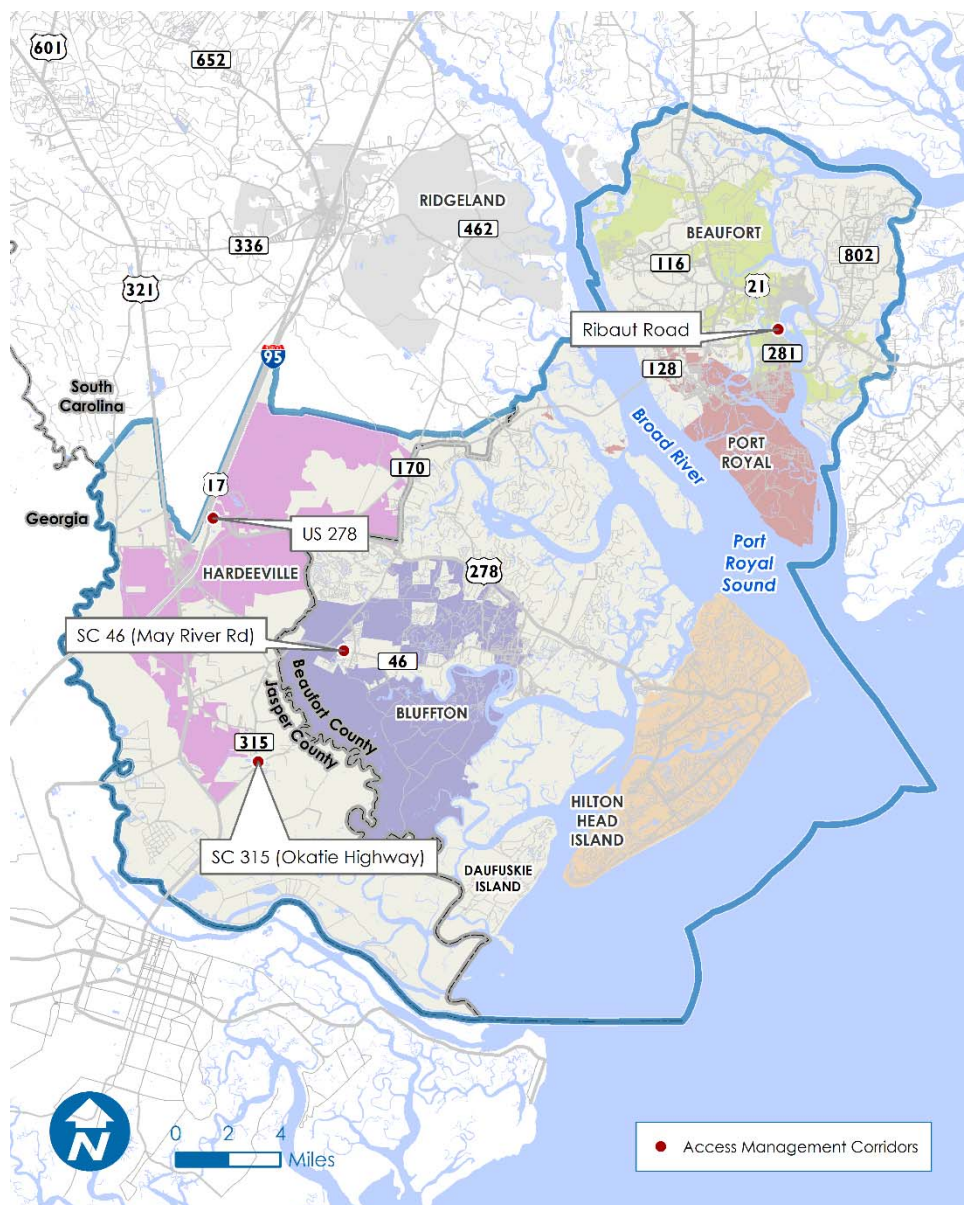
SC 46 (May River Road) – Stardust Lane to Gibbet Road (Pritchardville)

SC 315 (Okatie Highway) – McDowell Circle to Roper Road (Hardeeville)

US 278 – US 17 (Whyte Hardee Boulevard) to Medical Center Drive

SC 170 (Okatie Highway) from US 278 to Bull Hill Road in Bluffton was removed from further consideration due to work in process from SCDOT.

As shown in the map, these corridors are located throughout the LATS region. The access management corridor exhibits on the pages that follow offer potential solutions tailored to the corridor and serve as a guide for similar corridors in other parts of the study area.



Summary of Potential Access Management Treatments				
<i>Corridor</i> <i>Extents</i> <i>Location</i> <i>2040 LATS LRTP Project ID</i>	Ribaut Road	SC 46 (May River Rd)	SC 315 (Okatie Hwy)	US 278
	Boundary St to Allison Rd	Stardust Ln to Gibbet Rd	McDowell Cir to Roper Rd	US 17 (Whyte Hardee Blvd) to Medical Center Dr
	Beaufort	Pritchardville	Hardeeville	Hardeeville
	C-8 (ITS/Access Management)	C-18 (ITS/Access Management)	C-23 (Widening)	C-10 (Widening)
Site Access Treatments				
Improved On-Site Traffic Circulation				
Number of Driveways				
Driveway Placement/Relocation				
Cross-Access to adjacent Sites				
Median Treatments				
Non-Traversable Median				
Median U-Turn Treatment				
Directional Cross (Left-Over Crossing)				
Left-Turn Storage Bays				
Offset Left-Turn Treatment				
Intersection and Minor Street Treatments				
Skip Marks (Dotted Line Markings)				
Intersection and Driveway Curb Radii				
Minor Street Approach Improvements				
Intelligent Transportation Systems				
Signalization				
Progression-Controlled Signal System				
Dynamic Message Signs (DMS)				
Emergency Vehicle Preemption				

Ribaut Road – Boundary Street to Allison Road (Beaufort)

Objective	Improve traffic flow and enhance safety with coordinated improvements to existing intersections
Challenges	Opportunities
<ul style="list-style-type: none"> Significant number of crashes, including angle and rear-end collisions Variety of land uses including residential and institutional (e.g. Beaufort Memorial Hospital) Limited right-of-way 	<ul style="list-style-type: none"> Improving safety at intersections for vehicles and pedestrians Making turning movements more predictable Implementing corridor-wide sidewalks Identifying controlled access points

- a**
 - Improve turn radii
- b**
 - Improve turn radii
 - Consider protective/permissive turn signal
- c**
 - Consider protective/permissive turn signal
- d**
 - Add dedicated left-turn lanes on Depot Rd
 - Consider protective/permissive turn signal
- e**
 - Extend/install left-turn lanes on Ribaut Rd
- f**
 - Improve turn radii
 - Consider protective/permissive turn signal
- g**
 - Extend left-turn lane approaching north entrance to hospital
 - Consider traffic signal at north entrance
 - Prohibit exiting from main entrance
- h**
 - Consider protective/permissive turn signal



SC 46 (May River Road) – Stardust Lane to Gibbet Road (Pritchardville)

Objective Enhance safety by improving wayfinding and constructing pedestrian facilities

Challenges

- Lack of sidewalks
- Unclear access points for residential streets
- Frequent crashes at Gibbet Road, especially rear-end collisions

Opportunities

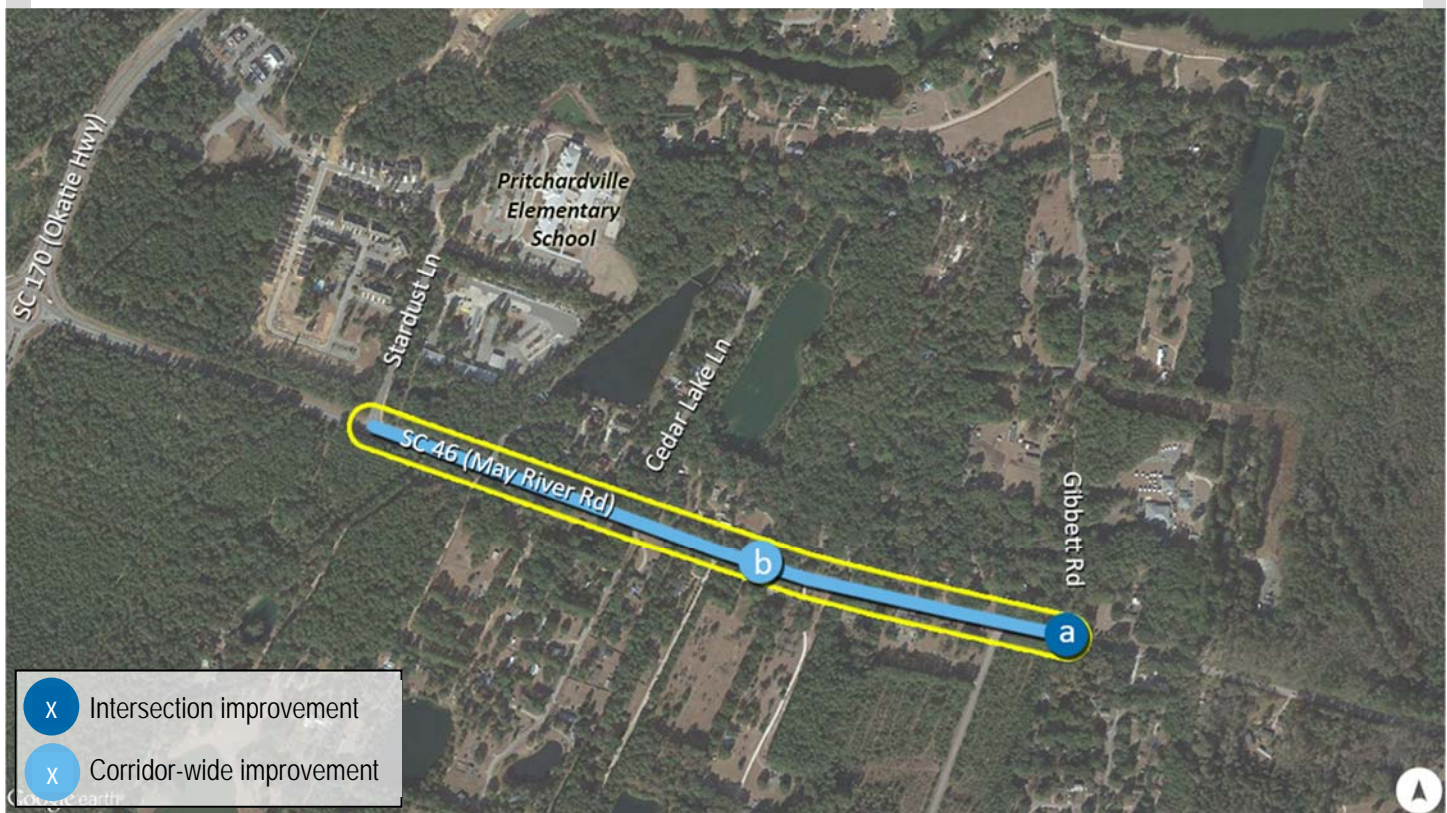
- Improving pedestrian access to Pritchardville Elementary School
- Enhancing wayfinding to school
- Improving visibility of side street access

a

- Construct left-turn lane
- Consider traffic signal
- Consider emergency preemption if signal installed due to proximity to fire station

b

- Install sidewalks along the corridor
- Restripe the main roadway and intersections on minor streets
- Improve curb radii along the corridor
- Mark unpaved driveways with reflective rods
- Install two-way left-turn lane
- Install wayfinding signs



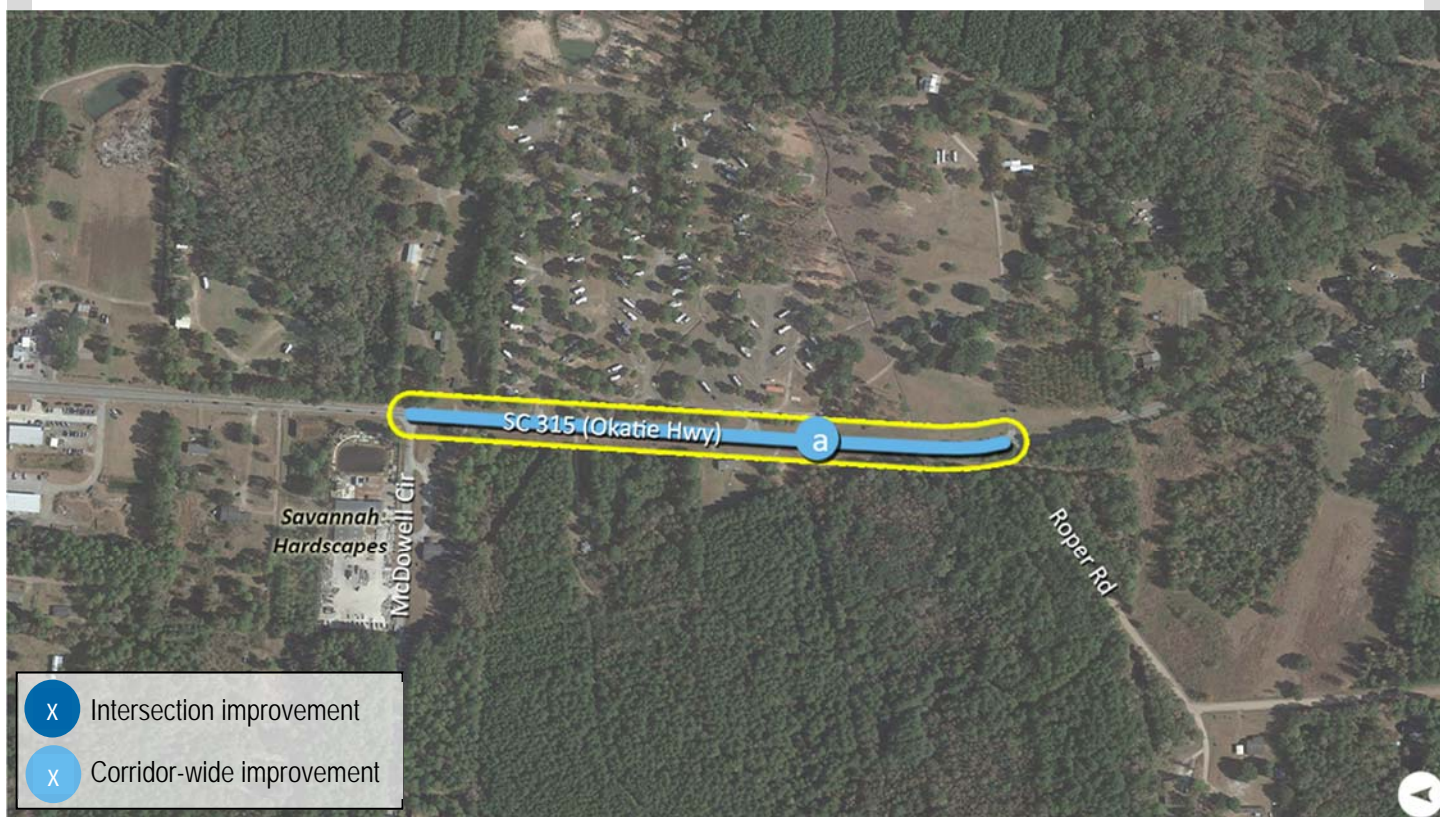
SC 315 (Okatie Highway) – McDowell Circle to Roper Road (Hardeeville)

Objective	Improve congestion and enhance safety by consolidating access points and installing a median
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a

- Install median
- Improve curb radii for driveways
- Construct sidewalks

Challenges	Opportunities
<ul style="list-style-type: none"> • Narrow travel lanes • Multiple access points 	<ul style="list-style-type: none"> • Improve minor street treatments such as driveway curb radii



US 278 – US 17 (Whyte Hardee Boulevard) to Medical Center Drive

Objective Incorporate access management when roadway is widened to improve traffic flow, enhance safety, and preserve access to businesses

Challenges

- Proximity of I-95 ramps to driveway access points along US 278
- Large volumes of heavy vehicles

Opportunities

- Construct a median to make turning movements more predictable
- Add storage for cross-over left turns
- Improve access to Coastal Carolina Hospital

a

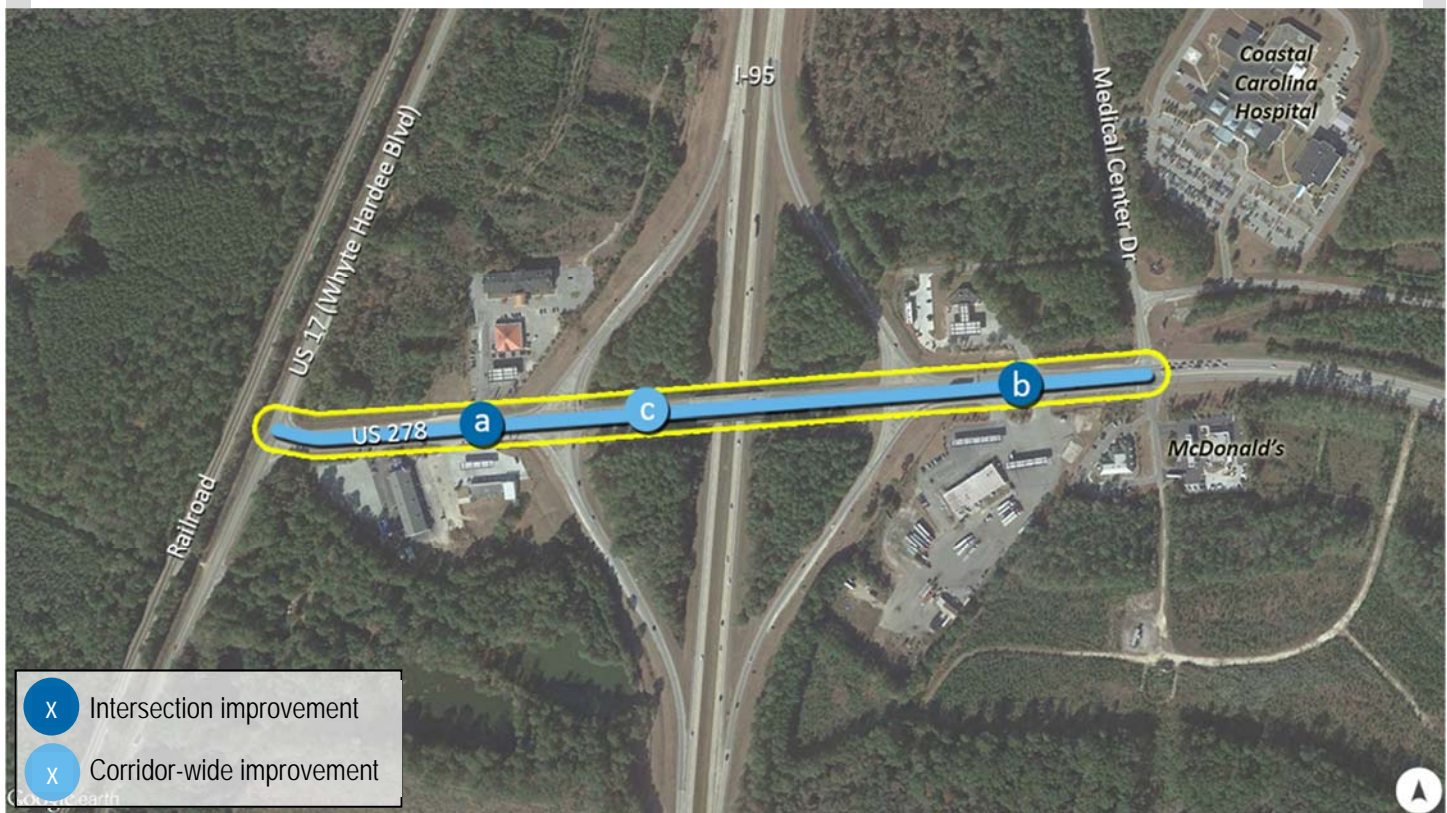
- Consolidate driveways or restrict them to single direction only (in only/out only)

b

- Consolidate driveways or restrict them to single direction only (in only/out only)

c

- Construct median as part of recommended widening project
- Add storage for left-turning vehicles



Spot Safety Intersections

Traffic safety is a key component to successful system-wide transportation plans, and a thorough examination of crash history and traffic patterns can usually predict locations where improvements to the transportation network would benefit traffic safety. A traditional approach to determining locations for safety countermeasures involves studying the number and type of crashes in a location, as well as the associated crash rate for the location. The *2040 LATS LRTP* took the additional step of considering crash severity.

Contributing factors to a location's high crash frequency include intersection design, access considerations, and traffic congestion. Many of the locations identified with high crash frequency were also locations where congestion often exists. A direct relationship exists between traffic congestion and crash frequency, which justifies the ongoing efforts to provide adequate funding for transportation projects that minimize traffic congestion. Driveway access in proximity to intersections also can contribute to crash frequency by increasing the unexpected conflict points near the intersection.

Rank	Intersection	Severity Index	Crash Rate	AADT	Fatal	Injury	PDO
1	US 278 & S-474	4.090	2.529	35,100	0	50	112
2	US 17 & SC 170	3.796	1.775	8,950	1	11	17
3	SC 46 & S-241	3.511	2.621	11,082	0	9	44
4	US 278 & S-29	2.748	1.477	34,500	0	40	53
5	US 17 & S-29	2.641	1.408	6,225	0	7	9
6	US 278 & S-442	2.570	1.485	23,242	0	23	40
7	US 278 & SC 170	2.415	1.392	46,050	2	32	83
8	US 21 & SC 280	2.392	1.407	31,150	0	28	52
9	US 278 & S-141	2.275	1.325	27,700	0	24	43
10	SC 46 & SC 170	2.151	1.412	16,300	0	11	31
11	US 21 & SC 116	2.086	1.276	27,050	0	20	43
12	SC 170 & S-761	2.043	1.152	14,750	0	12	19
13	US 278 & SC 46	1.799	1.089	46,300	0	30	62
14	US 278 & S-744	1.788	1.075	49,950	1	27	70
15	US 278 & S-242	1.733	1.119	49,950	0	28	74
16	US 17 & SC 336	1.683	1.135	14,000	0	7	22
17	US 278 & S-163	1.564	1.049	55,363	0	26	80
18	US 21 Bus & S-36	1.536	1.127	16,050	0	6	27

NOTES:

- Intersections ranked #5 and #16 are not located within LATS boundary.
- SC 280 (intersection #8) was designated as US 21 in 2012.

Crash Analysis

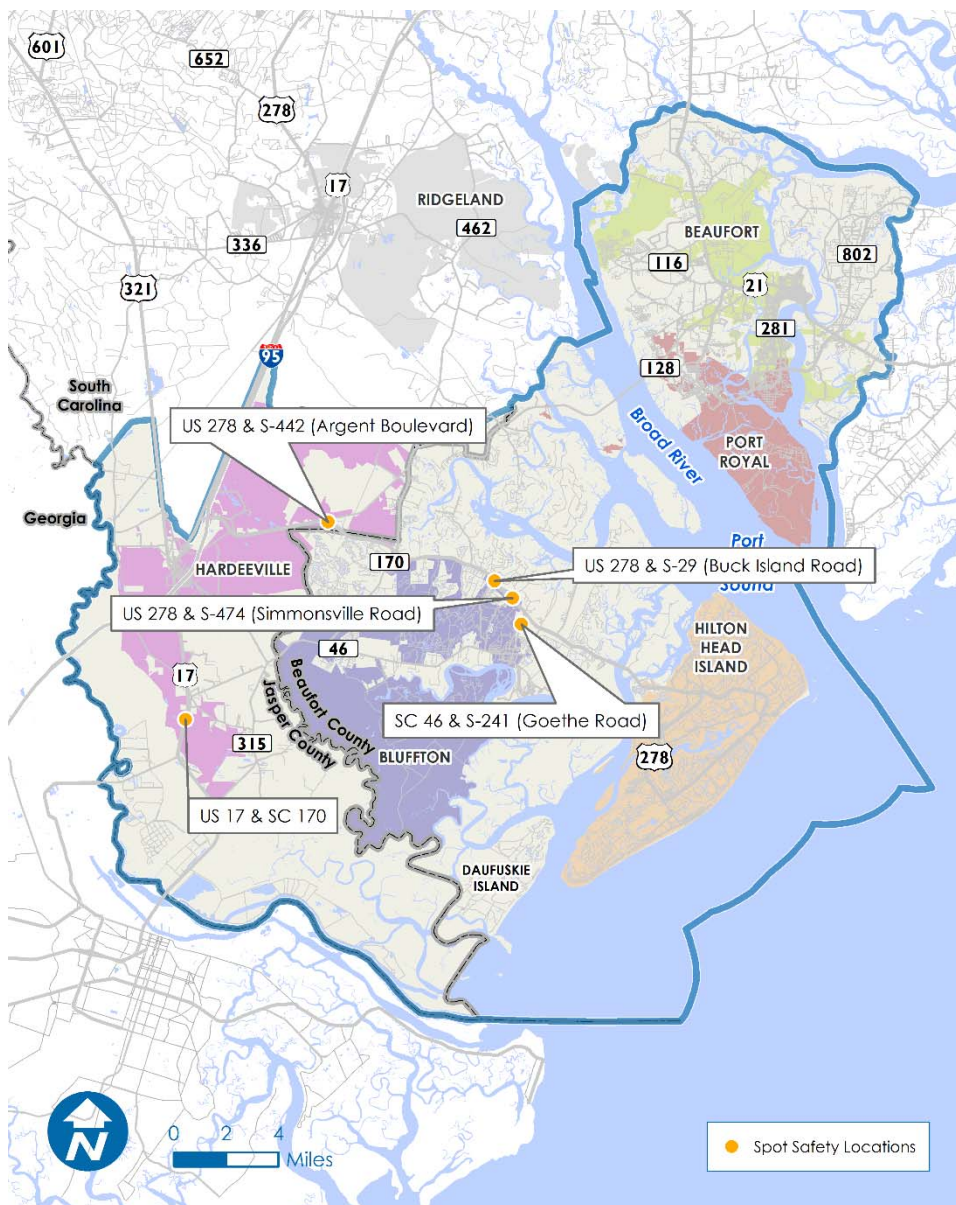
SCDOT provided crash data for Beaufort and Jasper counties spanning 2010 to 2012. In this timeframe, 7,925 crashes occurred in these counties. Approximately 7,000 crashes had accurate latitudinal and longitudinal coordinate information recorded in their crash reports and were able to be mapped. Of these crashes, 5,406 crashes occurred in the LATS study area.

SCDOT evaluates and ranks intersections by county based on crash rates and severity indices over five years. At left is a table of the intersections ranked by severity index for years 2008 to 2012.

Spot Safety Locations

The crash analysis was presented at the January 29, 2015 Technical Committee meeting, and five locations were selected for a slightly more detailed review to confirm existing conditions, identify design features, provide insight to potential patterns, and reveal conditions that could be enhanced through geometric changes or enhancements to traffic control. As shown on the map, the locations include:

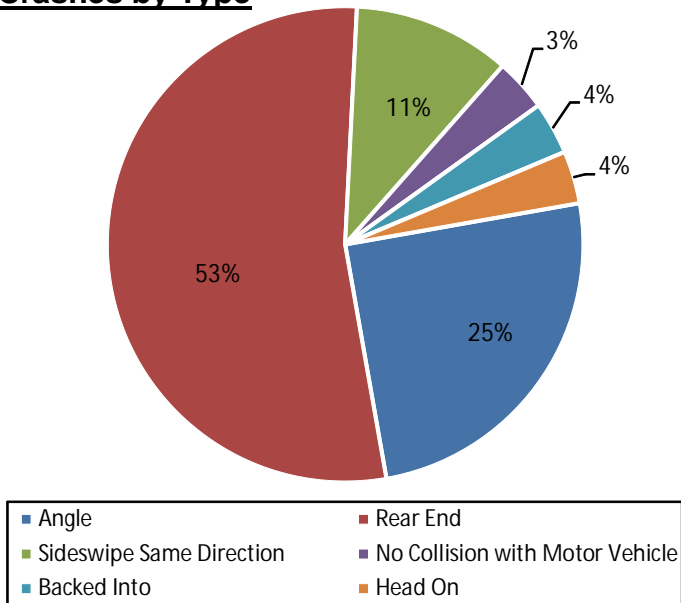
- US 278 and S-474 (Simmons Rd)
- US 278 and S-29 (Buck Island Rd)
- US 17 and SC 170
- US 278 and S-442 (Argent Blvd)
- SC 46 and S-241 (Goethe Rd)



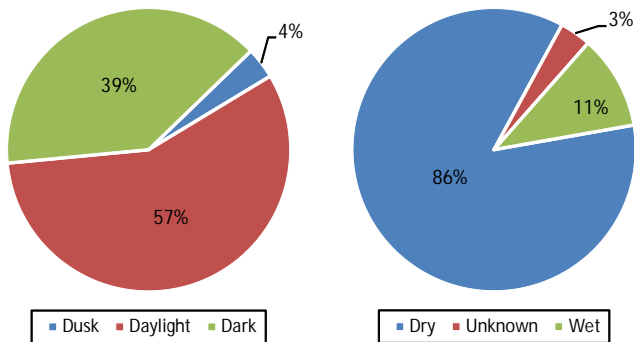
The exhibits on the pages that follow provide more detailed analysis (e.g. crashes by type and roadway conditions). The exhibits include a safety assessment and diagram that illustrates potential solutions.

US 278 & Simmonsville Road (S-474)

Crashes by Type



Roadway Conditions



Crashes between 2008-2012

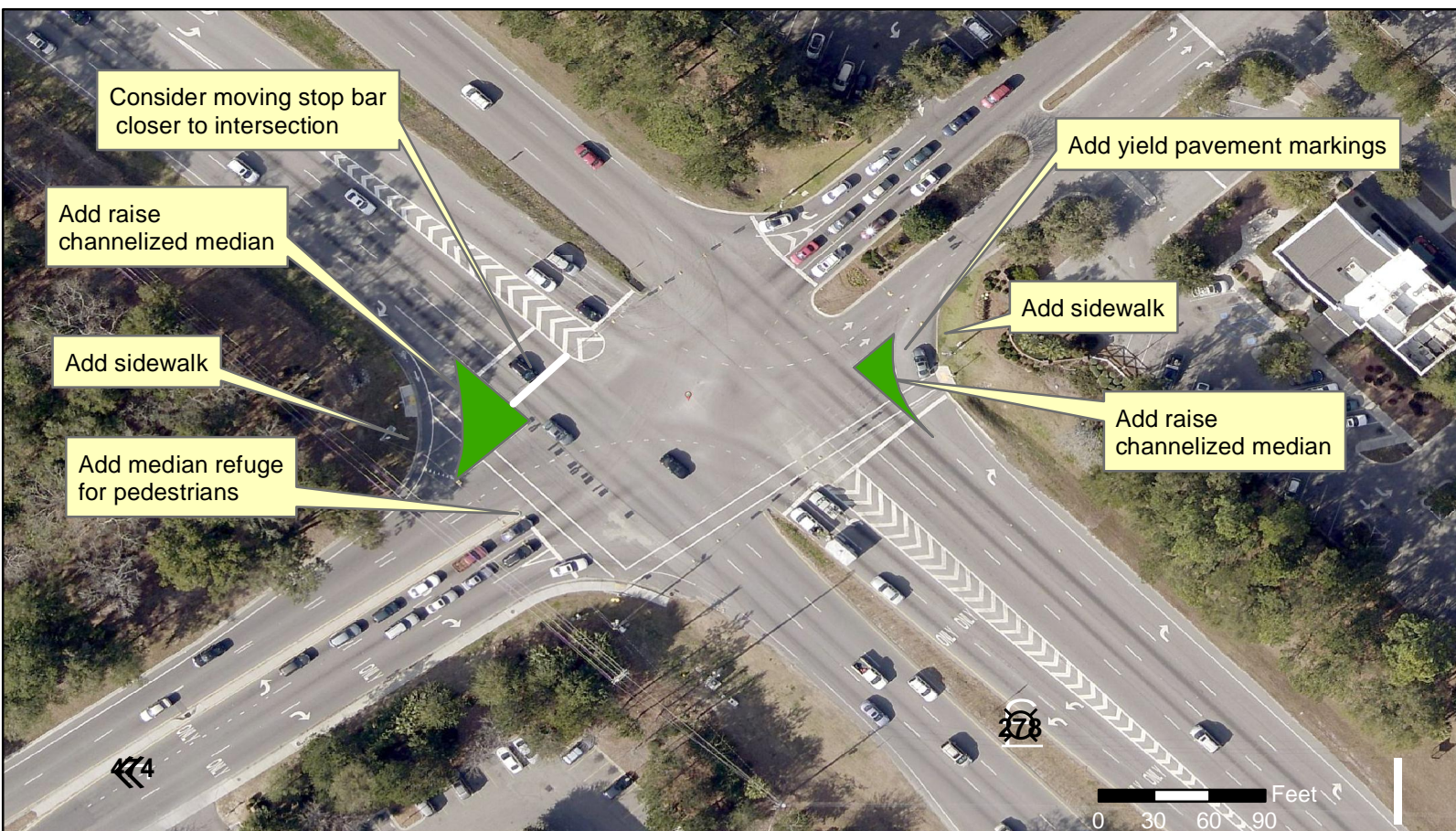
Rank	Intersection	Severity Index	Crash Rate	AADT	Fatal	Injury	PDO
1	US 278 & S-474	4.09	2.529	35,100	0	50	112

Safety Assessment

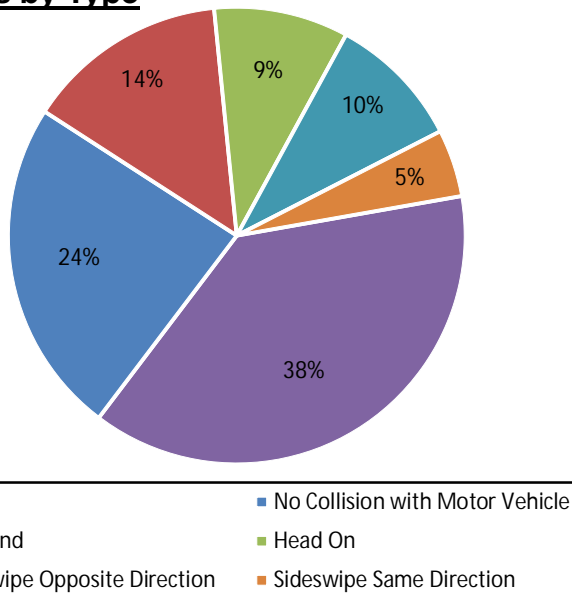
This intersection experienced 162 crashes over a five year period (2008 to 2012) and had the highest ranking based on severe crashes and crash rates at the intersections assessed in the LATS study area. It should be noted that the other crash information shown for this intersection was obtained from more detailed crash data over a three year period (2010 to 2012). During this time period, there were 28 reported crashes with approximately 70% resulting in an injury. The majority of crashes occurred during the day with other vehicles and the roadway conditions reported as "dry".

The following safety improvements should be considered for this intersection:

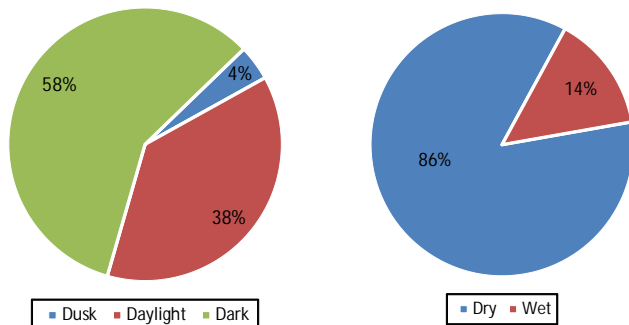
- Conduct comprehensive roadway safety audit in coordination with local law enforcement
- Review signal timings, coordination, and clearance intervals
- Add flashers to existing pole-mounted advanced "Signal Ahead" (W3-3) signs
- Add backplates to each signal head
- Review posted speed limits along each approach segment
- Add yield pavement marking for westbound to northbound right-turn movement
- A traffic study should be conducted to determine if any additional geometric improvements are required



Crashes by Type



Roadway Conditions



Crashes between 2008-2012

Rank	Intersection	Severity Index	Crash Rate	AADT	Fatal	Injury	PDO
2	US 17 & SC 170	3.796	1.775	8,950	1	11	17

Safety Assessment

This intersection experienced 29 crashes over a five year period (2008 to 2012) and had the 2nd highest ranking based on severe crashes and crash rates at the intersections assessed in the LATS study area. During this time period, there was one fatality and 11 injuries reported. It should be noted that the other crash information shown for this intersection was obtained from more detailed crash data over a three year period (2010 to 2012).

Since this intersection is unsignalized, traffic signal warrants should be conducted and reviewed annually to determine if signalization is appropriate for this location. Consideration should also be given to installing flashing intersection control beacons, with US 17 having a flashing yellow beacon and SC 170 a red flashing beacon.

The following safety improvements should also be considered for this intersection:

- Conduct comprehensive roadway safety audit in coordination with local law enforcement
- Add advance intersection warning signs (W2-2) to indicate vehicles may be turning or entering the highway
- Add yield sign for channelized northbound right turns (R1-2)
- Review posted speed limits along each approach segment
- Consider provision of intersection lighting
- A traffic study should be conducted to determine if any additional geometric improvements are required

Add advance intersection warning sign (W2-2) for this approach

Offset southbound left turn lane to increase sight distance

- Review need for flashing intersection control beacon

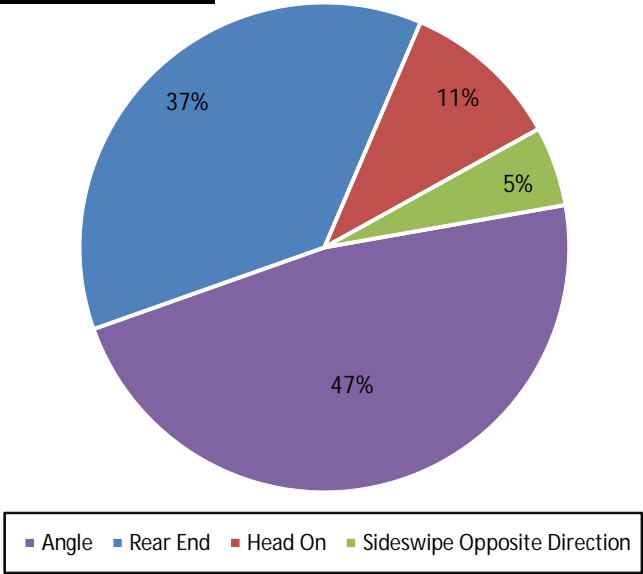
Consider adding westbound right turn lane

Add yield sign (R1-2) for channelized northbound right turning vehicles

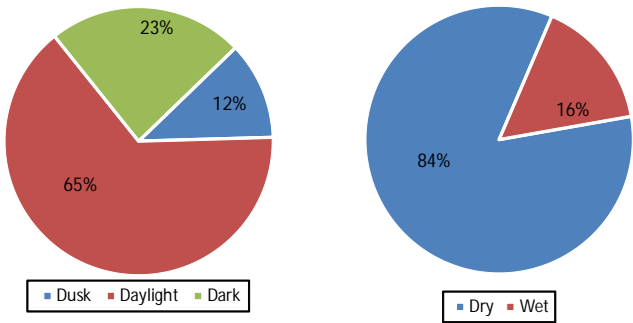
Add advance intersection warning sign (W2-2) for this approach

0 50 100 150 Feet

Crashes by Type



Roadway Conditions



Crashes between 2008-2012							
Rank	Intersection	Severity Index	Crash Rate	AADT	Fatal	Injury	PDO
3	SC 46 & S-241	3.511	2.621	11,082	0	9	44

Safety Assessment

This intersection experienced 53 crashes over a five year period (2008 to 2012) and had the 3rd highest ranking based on severe crashes and crash rates at the intersections assessed in the LATS study area. During this time period, there were 9 injuries reported. It should be noted that the other crash information shown for this intersection was obtained from more detailed crash data over a three year period (2010 to 2012).

Since this intersection is unsignalized, traffic signal warrants should be conducted and reviewed annually to determine if signalization is appropriate for this location.

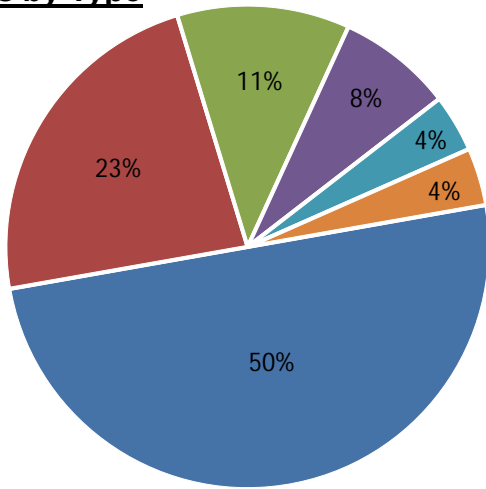
The following safety improvements should also be considered for this intersection:

- Conduct comprehensive roadway safety audit in coordination with local law enforcement
- Add pavement marking and signage for northbound Bluffton Road left-turn lane
- Review posted speed limits along each approach segment
- Consider provision of intersection lighting
- A traffic study should be conducted to determine if any additional geometric improvements are required

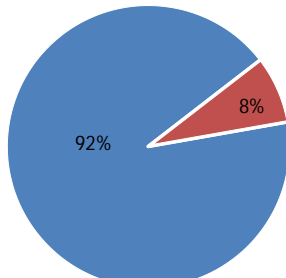
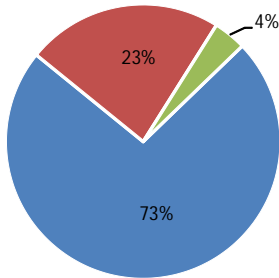


US 278 & Buck Island Road (S-29)

Crashes by Type



Roadway Conditions



Crashes between 2008-2012

Rank	Intersection	Severity Index	Crash Rate	AADT	Fatal	Injury	PDO
4	US 278 & S-29	2.748	1.477	34,500	0	40	53

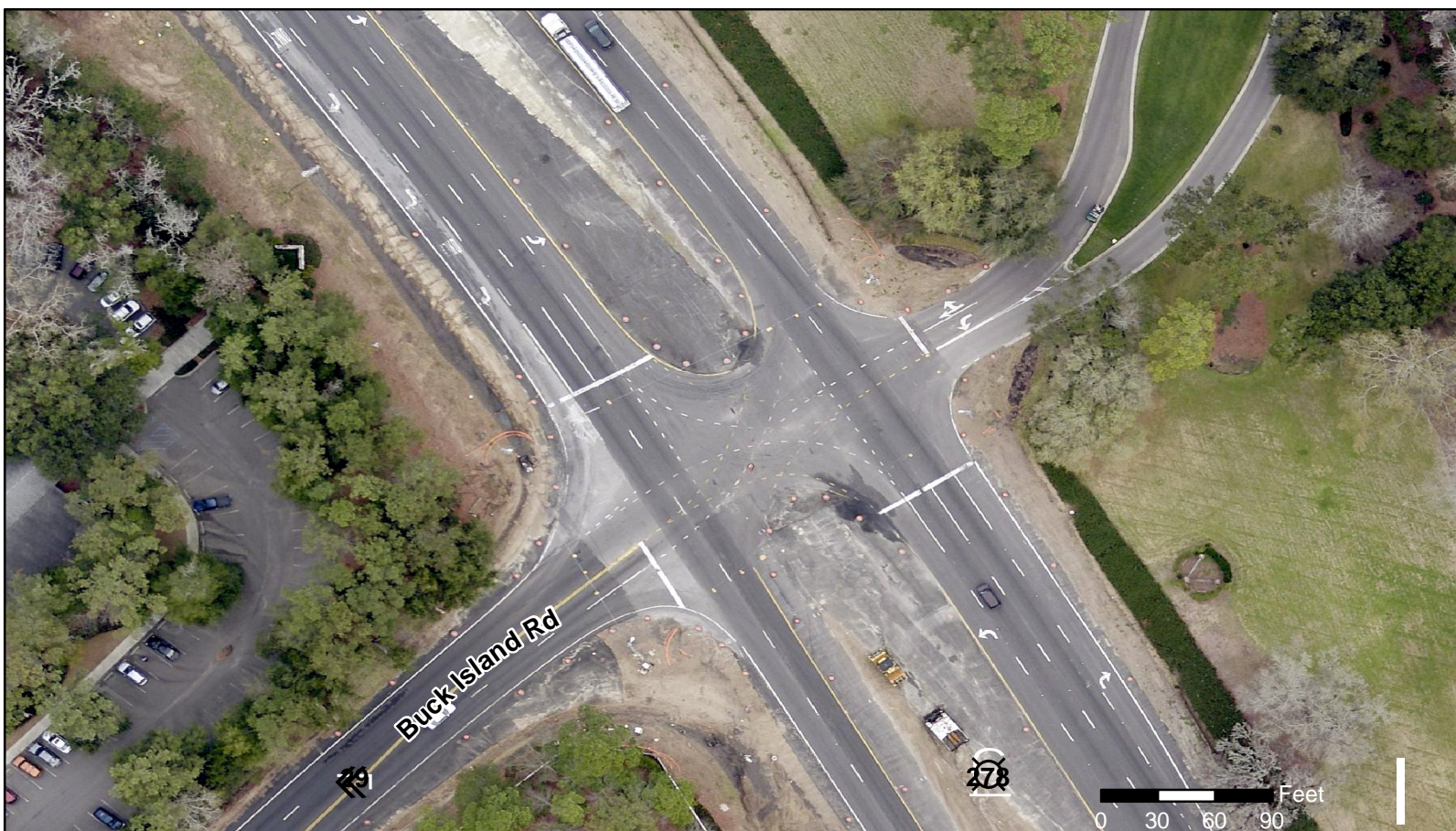
Safety Assessment

This intersection experienced 93 crashes over a five year period (2008 to 2012) and had the 4th highest ranking based on severe crashes and crash rates at the intersections assessed in the LATS study area. It should be noted that the other crash information shown for this intersection was obtained from more detailed crash data over a three year period (2010 to 2012). This data shows that the majority of crashes were rear end and angle collisions. During this time period, there were 26 reported crashes with approximately 80% resulting in an injury. The majority of crashes occurred during the day with other vehicles and the roadway conditions reported as "dry".

However, it should be noted that since the reporting of these crashes, recent construction has modified this intersection. In addition, a roadway safety audit for this segment of US 278 is currently being prepared.

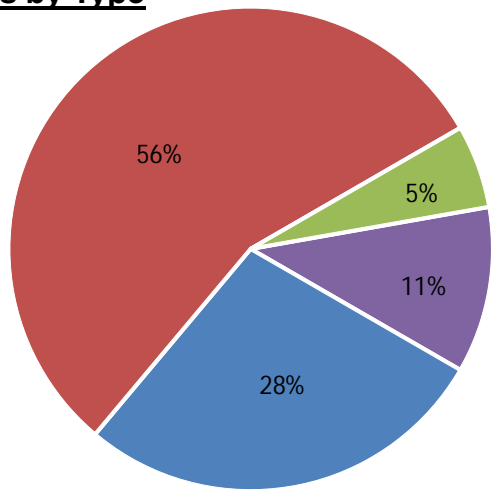
The following safety improvements should also be considered for this intersection:

- Accommodate pedestrian crossings if future pedestrian facilities are added along US 278
- With intersection improvement project, ensure new signal heads are installed with backplates
- A traffic study should be conducted to determine if any additional geometric improvements are required



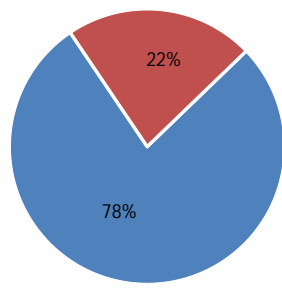
US 278 & Argent Boulevard (S-442)

Crashes by Type

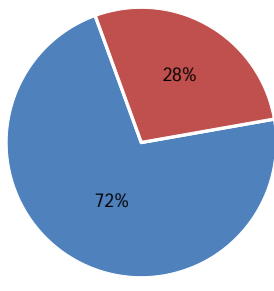


■ No Collision with Motor Vehicle ■ Angle ■ Rear End ■ Head On

Roadway Conditions



■ Daylight ■ Dark



■ Dry ■ Wet

Crashes between 2008-2012

Rank	Intersection	Severity Index	Crash Rate	AADT	Fatal	Injury	PDO
6	US 278 & S-442	2.57	1.485	23,242	0	23	40

Safety Assessment

This intersection experienced 63 crashes over a five year period (2008 to 2012) and had the highest ranking based on severe crashes and crash rates at the intersections assessed in the LATS study area. It should be noted that the other crash information shown for this intersection was obtained from more detailed crash data over a three year period (2010 to 2012). This data shows that the majority of crashes were rear end and angle collisions. During this time period, there were 18 reported crashes with approximately 70% resulting in an injury. The majority of crashes occurred during the day with other vehicles and the roadway conditions reported as “dry”. In addition, a roadway safety audit for this segment of US 278 is currently being prepared.

Since this intersection is unsignalized, traffic signal warrants should be conducted and reviewed annually to determine if signalization is appropriate for this location. Consideration should also be given to installing flashing intersection control beacons, with US 278 having a flashing yellow beacon and S-442 a red flashing beacon.

- The following safety improvements should also be considered for this intersection:
- Conduct comprehensive roadway safety audit in coordination with local law enforcement
 - Add advance intersection warning signs (W2-2) to indicate vehicles may be turning or entering the highway
 - Consider adding a westbound right turn with deceleration lane
 - Consider adding a southbound right turn lane with an acceleration lane on US 278
 - Clearly define westbound left turn lane for U-turns with markings and advance warning signs
 - Review posted speed limits along each approach segment
 - Provide intersection lighting
 - A traffic study should be conducted to determine if any additional geometric improvements are required

